

## Southeast Asian Wasp-like Sawflies of the *Tenthredo scrobiculata* Group (Hymenoptera, Tenthredinidae)

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**Abstract** *Tenthredo scrobiculata* group and its two subgroups are defined to include ten Southeast Asian species. They are: [*T. scrobiculata* subgroup] *T. scrobiculata* (Konow, 1898) from Assam and Sichuan, *T. abatae* (Togashi, 1990) from Taiwan, *T. largifasciata* (Konow, 1901) from Sikkim, *T. acco* sp. nov. from Vietnam and Sikkim, *T. sumatrana* (Forsius, 1935) from Sumatra, *T. borneo* sp. nov. from Borneo and *T. niisatoi* sp. nov. from Borneo; [*T. rugulosa* subgroup] *T. rugulosa* (Mocsáry, 1909) from the Malay Peninsula and Sumatra, *T. tonkinensis* (Mocsáry, 1909) sp. rev. from Vietnam and *T. blanki* sp. nov. from Sikkim. Four new species listed above are described, and a key is given for separating the ten species. *Allantus dudgeoni* Cameron, 1907, is synonymized with *Allantus largifasciatus* Konow, 1901. *Allantus tonkinensis* Mocsáry, 1909, is revived from synonymy with *Allantus scrobiculatus* Konow, 1898. Lectotypes are designated for *Allantus scrobiculatus* Konow, 1898, *Allantus largifasciatus* Konow, 1901, *Allantus dudgeoni* Cameron, 1907, *Allantus rugulosus* Mocsáry, 1909, and *Allantus tonkinensis* Mocsáry, 1909.

**Key words:** Hymenoptera, Tenthredinidae, *Tenthredo scrobiculata* group, new species, new synonymy, lectotype designation, Southeast Asia.

The vast sawfly genus *Tenthredo* Linnaeus, 1758, comprising about 700 world species, includes some groups of species showing superficial resemblance to other hymenopterans, such as eumenids, polistines and ichneumons. Wasp-like *Tenthredo* sawflies are particularly well represented on the mountains of Southeast Asia, where many of the tenthredinid sawflies encountered in the field, regardless of their subfamilies, resemble some kind of wasps or ichneumons in their appearance and behavior.

The present work was initiated in 1995 when I first visited northern Vietnam as a member of the entomological expedition organized by the National Science Museum, Tokyo, and collected a series of wasp-like sawflies mainly from the flower tufts of *Lithocarpus* trees on the summit of Mt. Tam Dao at an altitude of about 1,230 meters. Sorting of the collected material revealed that two similarly looking but morphologically distinctive forms are involved. Identification of these sawflies was not easy, because they did not quite fit descriptions of any species given in Malaise's (1945) key to Southeast Asian *Tenthredo*, though they went close to *T. largifasciata* (Konow, 1901), *T. dudgeoni* (Cameron, 1907) and *T. scrobiculata* (Konow, 1898). On my subsequent visits to some European museums, I tried to examine all the relevant types

and other specimens apparently related to them.

As a result of these researches, I have recognized a group of sawflies which is treated in this paper under the name of the *T. scrobiculata* group. It consists of ten Southeast Asian species probably mimicking some medium-sized eumenid wasps. Sawflies of this group are rather stout, black, wasp-like insects, further characterized by their rather short, clavate antennae, large deep punctures often with smooth interspaces on the head and thorax, black-marked wings, and pale-banded, basally narrowed abdomen.

Abbreviations for depositories of the specimens examined are: BMNH—The Natural History Museum, London; DEI—Deutsches Entomologisches Institut, Eberswalde; HNHN—Hungarian Natural History Museum, Budapest; KMNH—Kurashiki Museum of Natural History; KYU—Faculty of Agriculture, Kyushu University, Fukuoka; MNB—Museum für Naturkunde, Berlin; NRS—Naturhistoriska Riksmuseet, Stockholm; NSMT—National Science Museum (Nat. Hist.), Tokyo.

### ***Tenthredo scrobiculata* group**

The component species of this species-group (Figs. 1–3) share the following combination of characters: Black, with yellowish white bands or lateral marking on abdomen; in some species, part of clypeus, labrum, pronotum, tegula, mesoscutellar appendage, mesepisternum and metepisternum more or less yellowish white; wings more or less marked with black, at least with blackish patch at apex. Supraantennal crest inconspicuous, flat, continuous with equally flat frontal crest; antennal furrow obsolete (only faintly indicated) above lateral fovea; antenna short, clavate, 9-segmented. Mesoscutellum and mesopleuron (including “mesosternum”) without prominent ridges or projections (the strongly elevated mesoscutellum of *T. abatae* and *T. scrobiculata* are exceptions). Abdominal sternum with posterior margin slightly roundly produced and medially slightly concave in ventral view. Upper head, mesonotum and lateral surface of mesepisternum usually with large, deep, coarse punctures, with interspaces more or less smooth and shiny.

Represented by ten Southeast Asian species, this species-group may be subdivided into two subgroups, the *scrobiculata* subgroup and the *rugulosa* subgroup.

### **The *scrobiculata* subgroup**

Characters: Anterior margin of clypeus roundly emarginate (Fig. 6); 2nd and 3rd terga normal, not divided by longitudinal carina (Fig. 2 G); constriction between propodeum and 2nd tergum rather weak; sawsheath short and stout, with apical margin rounded ventrally (Fig. 10); saw stout, sickle-shaped (Figs. 10 B, G, 12); male genital cavity widely open and valviceps well visible from outside (Fig. 14 A–D); valviceps equipped with horn-like dorsal process (Figs. 14 A–D, 15).

The following seven species are included:

<i>T. scrobiculata</i> (Konow, 1898)	Assam, Sichuan
<i>T. abatae</i> (Togashi, 1990)	Taiwan
<i>T. largifasciata</i> (Konow, 1901)	Sikkim, Sumatra?, Nicobar?, Batjan?
<i>T. acco</i> sp. nov.	Vietnam, Sikkim
<i>T. sumatrana</i> (Forsius, 1935)	Sumatra
<i>T. borneo</i> sp. nov.	Borneo
<i>T. niisatoi</i> sp. nov.	Borneo

### The *rugulosa* subgroup

Characters: Anterior margin of clypeus deeply, broadly emarginate, with median part straight or sometimes slightly produced (Fig. 7); 2nd and 3rd terga divided by longitudinal carina (or often slightly convex, linear fold-like structure) along median line, in female the carina on 3rd tergum indistinct (Fig. 2 H); constriction between propodeum and 2nd tergum rather strong; sawsheath rather slender, with apical margin angulate ventrally (Fig. 11); saw slender (Figs. 11 A, C, 13); male genital cavity closed and valviceps barely visible from outside (Fig. 14 E–H); valviceps without horn-like dorsal process (Fig. 16).

The following three species are included:

<i>T. rugulosa</i> (Mocsáry, 1909)	Malay Peninsula, Sumatra
<i>T. tonkinensis</i> (Mocsáry, 1909)	Vietnam
<i>T. blanki</i> sp. nov.	Sikkim, Batjan?

### Systematic position and relationship

The intrageneric classification of *Tenthredo* has not been well established on the world basis. Zhelochovtsev's (1988) subgeneric classification of the western Palearctic fauna seems successful, but it may not be applicable to a vast array of species occurring in eastern Asia. However, the members of the *scrobiculata* group would safely run to the subgenus *Tenthredo* in Zhelochovtsev's (1988) key. Following Goulet's (1996) phylogenetic analysis of *Tenthredo* s. l., this species-group would also come close to the group related to *Tenthredo* s. str. Here I treat the *scrobiculata* group as a species-group within the subgenus *Tenthredo*.

The *scrobiculata* group as a whole is rather loosely defined and no clear evidence for its monophyly has been detected. On the other hand, each of the two subgroups is well characterized by at least one unique derived feature and thus considered monophyletic. The postulated autapomorphies of the *scrobiculata* subgroup are the stout, sickle-shaped saw (Fig. 12) and the presence of a horn-like dorsal process on each of the valviceps (Figs. 14 A–D, 15). Within the *scrobiculata* subgroup, *T. scrobiculata* and *T. abatae* are most closely related, because, besides the similarities in the punctuation of the head and thorax and the shape of the mesoscutellum, they share the partially obliterated postgenal carina, apparently representing an apomorphic condition. The relationship between the other members of the subgroup is not

clear. The postulated autapomorphy of the *rugulosa* subgroup is the presence of a longitudinal carina dividing the 2nd (and often also the 3rd) abdominal tergum along the median line (Fig. 2 H). The relationship between the three component species remains uncertain.

#### *Notes on T. dilaticornis and T. marginiceps*

Judging from the descriptions by Muche (1986) and Singh and Saini (1988), *T. dilaticornis* Muche, 1986 (= *T. variolata* Singh & Saini, 1988, according to Taeger, 1992) from the Himalayas may also belong to the *scrobiculata* subgroup of the *scrobiculata* group in view of the shape of the antenna, punctuation of the head and thorax, and particularly the stout, sickle-shaped saw (Fig. 17 in Singh & Saini, 1988). However, the assignment of *T. dilaticornis* within the *scrobiculata* subgroup may not be correct, because 1) the clypeus of this species is rather widely emarginate (Fig. 1 in Singh & Saini, 1988) and 2) the penis valve has no horn-like process (Fig. 11 in Singh & Saini, 1988). Without seeing specimens, I do not discuss this species further here.

*Tenthredo marginiceps* Cameron, 1899, from Assam and Sikkim resembles species of the *scrobiculata* group and may possibly come close to this species-group phylogenetically. However, *T. marginiceps* is not included in the *scrobiculata* group, because it has the head almost impunctate, the mesoscutellum and mesopleuron with prominent projections, and the abdominal sterna with posterior margins nearly straight.

#### *Notes on Parastatis and Absentia*

The *scrobiculata* group includes two species for which two separate monotypic genera have been proposed; *Parastatis indica* Kirby, 1881, a synonym of *T. largifasciata*, is a type species of the genus *Parastatis* Kirby, 1881, and *T. abatae* (Togashi, 1990) was originally described as the type species of the genus *Absentia* Togashi, 1990.

Kirby (1881) characterized *Parastatis* by the 8-segmented, clavate antennae, but the antenna of the type species is actually 9-segmented and the clavate antenna alone is of little significance in the classification of tenthredinid genera. Konow (1905) without discussion but quite reasonably treated *Parastatis* as a synonym of *Allantus* (= *Tenthredo*). Goulet (1996) somehow misunderstood the characters of *Parastatis* and placed it in the group characterized by “a very long flagellum.” Actually, *Parastatis* has rather short, club-like antennae, and belongs to a group related to *Tenthredo* s. str. in Goulet’s sense.

*Absentia* was characterized by the “incomplete occipital carina (in *Tenthredo*, the occipital carina is complete and distinct)” and the “typical ‘lancet-like’ lancet (in *Tenthredo*, the lancet is elongated)” (Togashi, 1990). In fact, partial obliteration of the postgenal carina is known also in some species of *Tenthredo* (e.g., *T. frauenfeldi*

group), and only the “typical ‘lancet-like’ lancet,” which is used in the present work to characterize the *scrobiculata* subgroup, will not justify the separation of *Absentia* from *Tenthredo*. Here I propose to treat *Absentia* as a synonym of *Tenthredo*. This synonymy has already been published by Goulet (1996).

***Tenthredo scrobiculata* (Konow)**

(Figs. 1 A–B, 4 A, 6 A, 8 A, 10 A–B)

*Allantus scrobiculatus* Konow, 1898, p. 88.

*Tenthredo scrobiculata*: Malaise, 1945, p. 255. [Partim.]

*Type material examined.* ♀ (lectotype, herewith designated), “Khasia Hills,” “Coll. Konow,” “*Allantus scrobiculatus* Knw., Assam,” “Typus” [red], “Lectotype, *Allantus scrobiculatus* Konow, 1898, Det. A. Shinohara, 1996” (DEI).

*Other material examined.* 1 ♀, “Tseo-Jia-Geo, China, Sept. 1, 1929,” “DCGraham collector,” “*Tenthredo scrobiculatus* Knw., Malaise det., 1936” (NRS).

*Distribution.* Assam, China (Sichuan).

*Remarks.* Konow (1898) described this species based on the unknown number of female specimens. There is only one specimen of this species in Konow’s collection in DEI, and here I designate it as a lectotype. The lectotype (Fig. 1 A–B) is in good condition, with only the apex of left mid leg missing.

This species is well characterized by its dark coloration, obliterated upper post-genal carina, strongly convex mesoscutellum, normal 2nd and 3rd abdominal terga, and sparser punctuation on the head (Fig. 4 A) and thorax (Fig. 8 A). It has much in common with *T. abatae* from Taiwan, but differs from the latter in the points given in the key. Males are still unknown for both of these species.

The two specimens examined are from “Khasia Hills, Assam” and “Tseo-Jia-Geo, China” (in Sichuan Province according to Malaise, 1945), respectively. They are the only specimens of this species ever recorded in literature. The male specimen referred to by Malaise (1945) actually belongs to *T. acco* described below. The Chinese specimen differs from the lectotype in that the mesoscutellum is nearly impunctate with only a few large punctures (covered with widely spaced large punctures in the lectotype) and the pale marks along the posterolateral margin of each of the 3rd, 5th and 6th abdominal terga and along the posterior margin of each of the 4th to 6th abdominal sterna are reduced or missing (the pale marks are well developed in the lectotype, Fig. 1 B). Here I regard these differences as intraspecific variations, but the validity of this hypothesis should be reexamined when more material becomes available.

***Tenthredo abatae* (Togashi, 1990)**

(Figs. 1 C–D, 4 B, 6 B, 8 B, 10 C)

*Absentia abatae* Togashi, 1990, p. 182.

*Type material examined.* ♀ (holotype), “Nan Fen Shan, near Liu Kuei, Alt. 1500 m, S-Taiwan, 1. X. 1986, Col. K. Baba,” “*Absentia abatae* sp. nov., det. Togashi, 1989,” “Holotype” [red], “Type No. 2788 K. U.” [orange] (KYU); 1 ♀ (paratype) “Li-shan, Taiwan, 27. VII. 1974, Y. Miyake,” “*Absentia abatae* sp. nov., det. Togashi, 1989,” “Paratype” [red] (NSMT).

*Distribution.* Taiwan.

*Remarks.* *Tenthredo abatae* was described on the basis of three females, and no additional information about the species has been published. I was able to examine two specimens from the type series including the holotype. The holotype (Fig. 1 C–D) is in good condition, though the right fore tarsus is missing.

The abdomen of the holotype is black with a small spot at lateral side of the propodeum, a spot at lateral side of the 3rd tergum and very broad posterior margin of the 4th tergum yellowish white, though the original description states that “a small spot on lateral sides of 1st tergite, 4th tergite, and a small spot on lateral sides of 5th tergite” are yellowish white to yellow. The other specimen I have examined, a paratype, has only three segments left on the abdomen; the propodeum has no pale spots whereas the 3rd tergum has a spot on each lateral side.

As discussed under *T. scrobiculata*, *T. abatae* is closely related to *T. scrobiculata* but differs from it in the points given in the key. *Tenthredo abatae* is the type species of the genus *Absentia* Togashi, 1990, which is here regarded as a synonym of *Tenthredo* (see discussion above).

***Tenthredo largifasciata* (Konow)**

(Figs. 1 E–H, 4 C–D, 6 C–D, 8 C–D, 10 D, 12 A–B)

*Parastatis indica* Kirby, 1881, p. 107. [Preoccupied in *Tenthredo* by Cameron, 1876].

*Allantus largifasciatus* Konow, 1901, p. 67.

*Allantus indicus*: Konow, 1905, p. 134.

*Allantus dudgeoni* Cameron, 1907, p. 3. **Syn. nov.**

*Tenthredo largifasciata* Malaise, 1945, p. 254.

*Tenthredo dudgeoni*: Malaise, 1945, p. 255.

*Type material examined.* ♀ (holotype of *Parastatis indica* Kirby, 1881), “Type” [red circle], “B. M. TYPE HYM 1.198,” “*Parastatis indica* (Type) Kirby / Ent. Mo. Mag., 1881 [?] xviii p. 107 91.53,” “121 / India, Farr” (BMNH); ♀ (lectotype of *Allantus largifasciatus* Konow, 1901; hereby designated), “India, Sikkim, ex coll. Fruhstorfer,” “*Allantus largifasciatus* n. sp.” [red rectangular label without letters], “Lectotype, *Allantus largifasciatus* Konow, 1901, det. A. Shinohara, 1997” (HNHM);

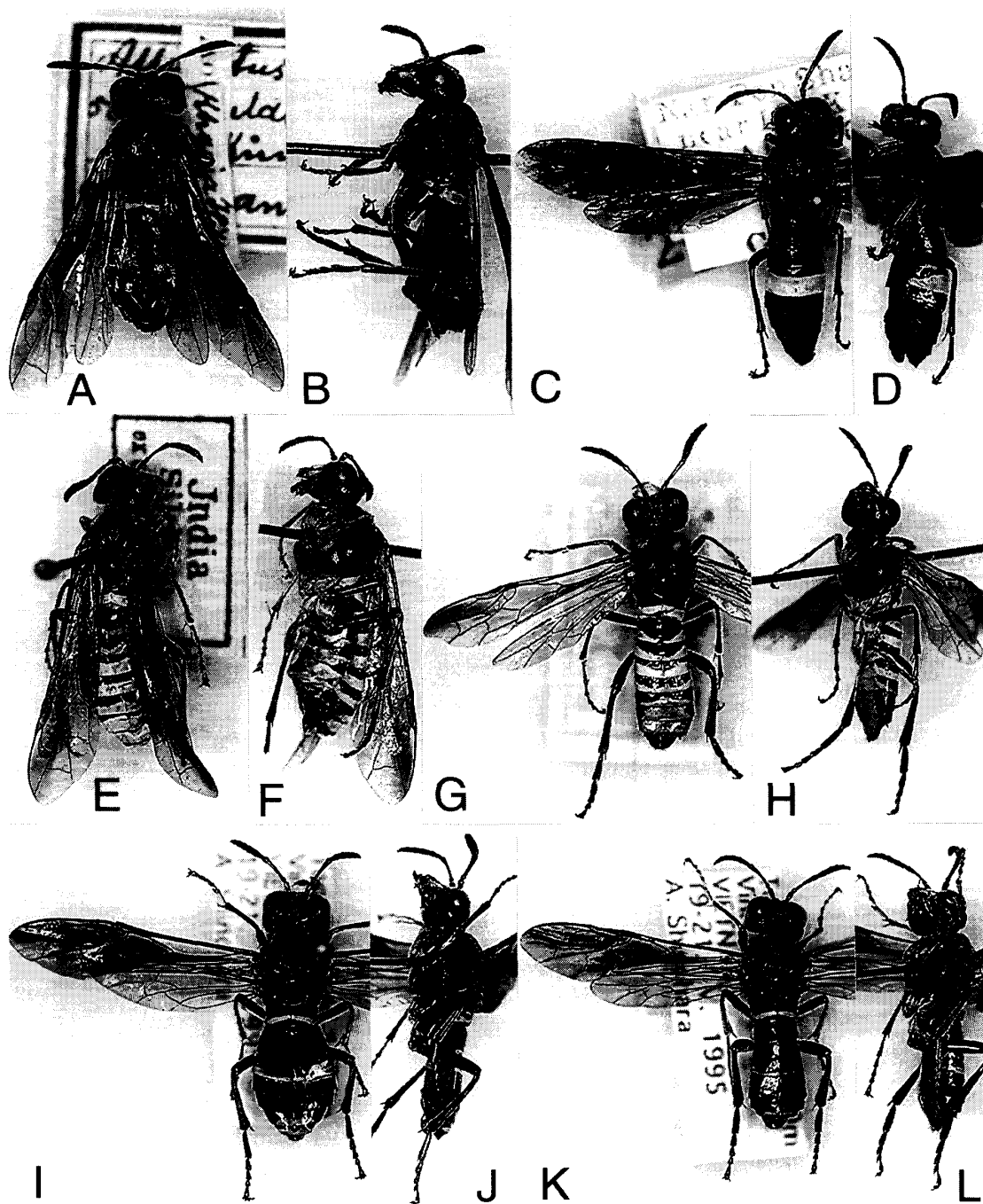


Fig. 1. *Tenthredo* spp. — A–B, *T. scrobiculata* (Konow), ♀, lectotype, length 13 mm; C–D, *T. abatae* (Togashi), ♀, holotype, 16 mm; E–F, *T. largifasciata* (Konow), ♀, paralectotype, Sikkim, 13 mm; G–H, do., ♂, paralectotype, Sikkim, 12 mm; I–J, *T. acco* sp. nov., ♀, holotype, 14 mm; K–L, do., ♂, paratopotype, 13 mm.

♀ (paralectotype of *Allantus largifasciatus* Konow, 1901), "India, Sikkim, ex coll. Fruhstorfer," "*Allantus largifasciatus* det. Knw.," [red rectangular label without letters], "Paralectotype, *Allantus largifasciatus* Konow, 1901, det. A. Shinohara, 1997" (HNHM); ♀ (paralectotype of *Allantus largifasciatus* Konow, 1901), "India, Sikkim, ex coll. Fruhstorfer," "Coll. Konow," "Typus" [red], "*Allantus largifasciatus* Konow, Sikkim," "Paralectotype, *Allantus largifasciatus* Konow, 1901, det. A. Shinohara, 1997" (DEI); ♀ (paralectotype of *Allantus largifasciatus* Konow, 1901), "India, Sikkim, ex coll. Fruhstorfer," "Coll. Konow," "Typus" [red], "Paralectotype, *Allantus largifasciatus* Konow, 1901, det. A. Shinohara, 1997" (DEI); ♀ (lectotype of *Allantus dudgeoni* Cameron, 1907; hereby designated), "Type" [red circle], "B. M. TYPE HYM 1.197," "*Allantus Dudgeoni* Cam. Type ♀ Sikkim," "Sikkim," "Cameron Coll. 1909-182," "Lectotype, *Allantus dudgeoni* Cameron, 1907, det. A. Shinohara, 1997" (BMNH); ♂ (paralectotype of *Allantus dudgeoni* Cameron, 1907), "Paratype" [yellow circle], "*Allantus Dudgeoni* Cam. Type ♂ Sikkim," "Cameron Coll. 1909-182," "Paralectotype, *Allantus dudgeoni* Cameron, 1907, det. A. Shinohara, 1997" (BMNH).

*Other material examined.* 93 ♀, 5 ♂, "Sikkim, Coll. Bingham" (MNB, NSMT, NRS); 1 ♀, "4.94, Sikkim, Runjit Tal, 1000 ft., Coll. Bingham" (MNB); 2 ♀, "Sikkim, Runjit Valley, 1000 ft., 6.94"; 2 ♀, "India, Sikkim, ex coll. Fruhstorfer" (MNB); 1 ♀, "Sikkim, Coll. Bingham," "*Tenthredo dudgeoni* (Cam.), Malaise det., 1938 (MNB); 1 ♀, 1 ♂, "Sikkim, Coll. Bingham," "*T. scrobiculata* (Knw), nm. *dudgeoni* (Cam.), Malaise det., 1939" (MNB, NSMT); 3 ♀, "Sumatra, Coll. Bingham" (MNB); 4 ♀, 1 ♂, "Nicobara, Bingham coll." (MNB); 6 ♀, 1 ♂, "Batjan, ex coll. Fruhstorfer" (MNB, DEI, NSMT); 4 ♀, 2 ♂, "Coll. Bingham" (MNB); 1 ♀, "Buxa, Bhotan," "Nur[?] Coll.: 1915-34," "*Allantus Dudgeoni* Cam. Type ♀ Bhotan" (BMNH).

*Distribution.* Sikkim, Sumatra?, Nicobar?, Batjan?.

*Remarks.* *Parastatis indica* was described on the basis of a single female specimen, which is now kept in BMNH. It is rather poorly preserved; the left antenna is broken and glued to the head, right mid tarsus, right hind leg, and apex of left hind tarsus are missing, and left mid leg is detached and glued wrongly to the place of right hind leg.

*Allantus largifasciatus* was described on the basis of unknown number of females from "India or. (Sikkim)" deposited in "Mus. Hung." (Konow, 1901). I have examined two female specimens in HNHM and selected one as the lectotype. It is in a fair condition but both hind tarsi are missing. Two females in Konow's collection in DEI are labeled "Typus" and probably belong to the type series. I regard them as paralectotypes of *A. largifasciatus* (one of them shown in Fig. 1 E–F).

Cameron (1907) described *Allantus dudgeoni* based on the unknown number of female and male specimens from Sikkim. In BMNH, there are one female and one male from Sikkim, the former labeled "Type" and the latter "Paratype". The female specimen is hereby designated as the lectotype. It is intact except that the right mid



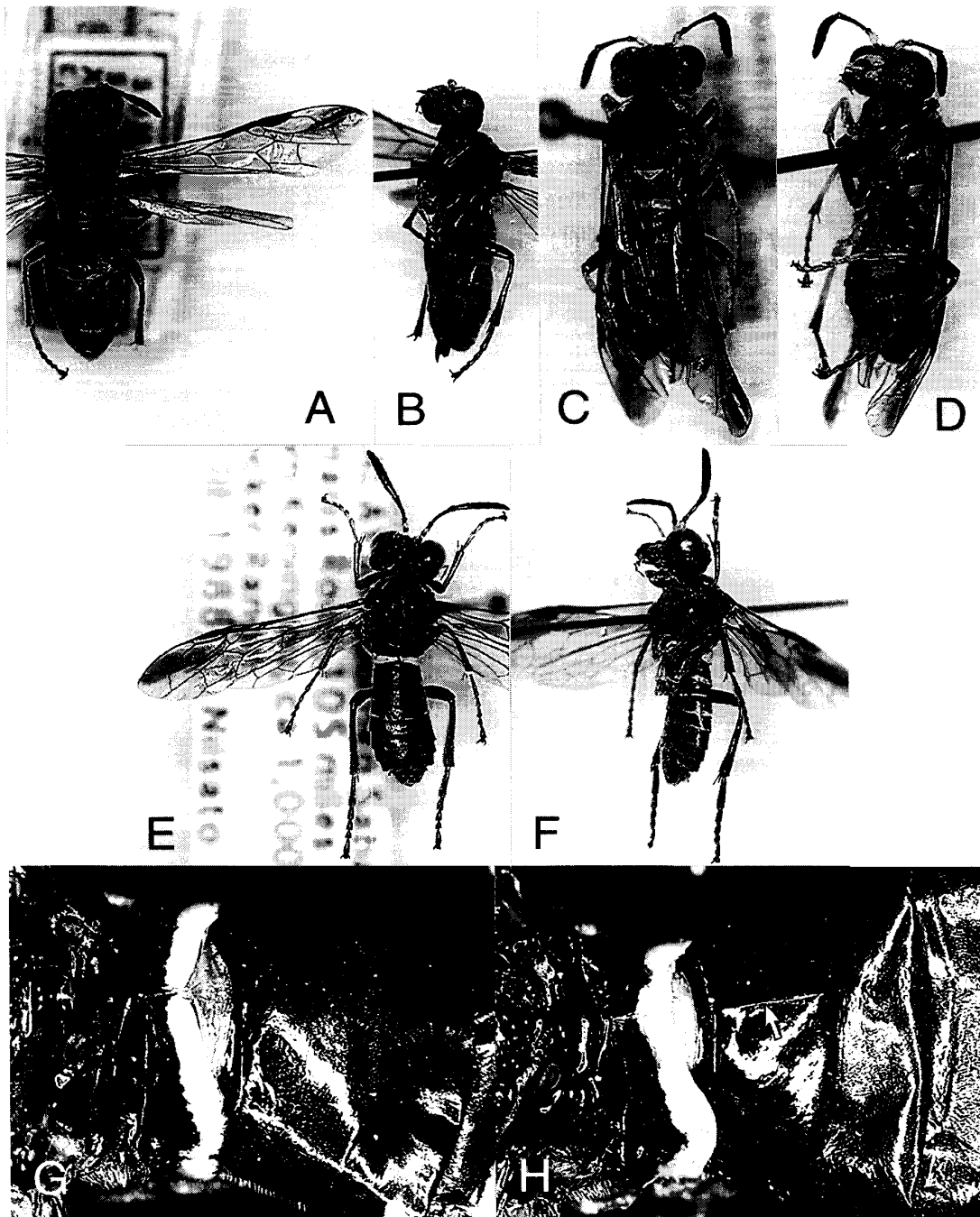


Fig. 2. *Tenthredo* spp. — A–B, *T. sumatrana* (Forsius), ♀, paratype, Sumatra, length 11 mm; C–D, *T. borneo* sp. nov., ♀, holotype, 10 mm; E–F, *T. niisatoi* sp. nov., ♂, holotype, 8.5 mm; G, posterior part of thorax and base of abdomen, *T. acco* sp. nov., ♀, holotype; H, do., *T. tonkinensis* (Mocsáry), ♀, Mt. Tam Dao, fold-like structure on 2nd tergum indicated by an arrow.

leg is missing. A female labeled “Buxa, Bhotan,” “Nur[?] Coll.: 1915-34,” “*Allantus Dudgeoni* Cam. Type ♀ Bhotan” in BMNH cannot be a syntype, since it is not from Sikkim and was apparently registered later than the syntypes; the syntypes are labeled “1909-182,” whereas the “Bhotan” specimen is labeled “1915-34.”

*Tenthredo largifasciata* may come close to *T. acco* from Vietnam and Sikkim but is distinguished from it by having the pronotum and abdominal segments more extensively pale-marked (Fig. 1 E–H) and the lateral surface of the mesepisternum more sparsely punctured with wider and smoother interspaces (Fig. 8 C–D).

This species shows rather small variation in color pattern. In several specimens examined, the yellow stripe along the posterior margin of each of the 2nd and 3rd segments is reduced medially (dorsally) or even missing.

Some specimens examined are labelled “Batjan” or “Nicobara” [=Nicobar Island?]. Occurrence of this species on these islands (and perhaps also on Sumatra) should be reconfirmed by further collecting (see comments under *T. blanki*).

***Tenthredo acco* sp. nov.**

(Figs. 1 I–L, 2 G, 4 E–F, 6 E–F, 8 E–F, 10 E, 12 C–D, 14 A–B, 15)

*Tenthredo scrobiculata*: Malaise, 1945, p. 255. [Partim.]

**Female** (holotype). Length 14 mm. Head black, with clypeus excepting narrow outer margin yellowish white; labrum black, with very small paired pale marking basally; mandible black with outer surface yellowish white and apex rufous. Antenna black throughout. Thorax black, with elongate fading spot at each dorsolateral corner of pronotum, narrow posterior margin of venter of cervical sclerite, and small spot on metepisternum yellowish white. Legs black, with the following dark yellowish white: apical 1/3 and stripe along outer margin of fore coxa, broad stripe on anterior surface of fore femur, anterior (ventral) surface of fore tibia, fore tarsus excepting small parts of dorsal surface, narrow posterior margin of mid coxa, apically widening stripe on anterior surface of mid femur, ventral surface of mid tibia, mid tarsus excepting narrow dorsal surface, and narrow posterior margin of hind coxa. Forewing strongly infuscated from base to apex, with cells R, 1A, 2A, lower halves of 2Rs and 3Rs, and 2M and 3M more weakly infuscated to hyaline; hindwing rather weakly infuscated; veins and stigma blackish brown. Abdomen black, with the following yellowish white: posterior 1/3 of propodeum, lateral spot at posterior margin of 3rd tergum, posterior 1/3–1/2 of 4th tergum, minute spot at posteroventral corner of 5th tergum, large median transverse spot at posterior margin of 7th tergum, still larger transverse spot at posterior margin of 8th tergum, rather narrow posterior margin of 9th tergum, narrow posterior margin of each of 2nd and 3rd sterna, posterior 1/2 of each of 4th to 6th sterna, and posterior margin and posteromedian triangular part of 7th sternum (hypopygium).

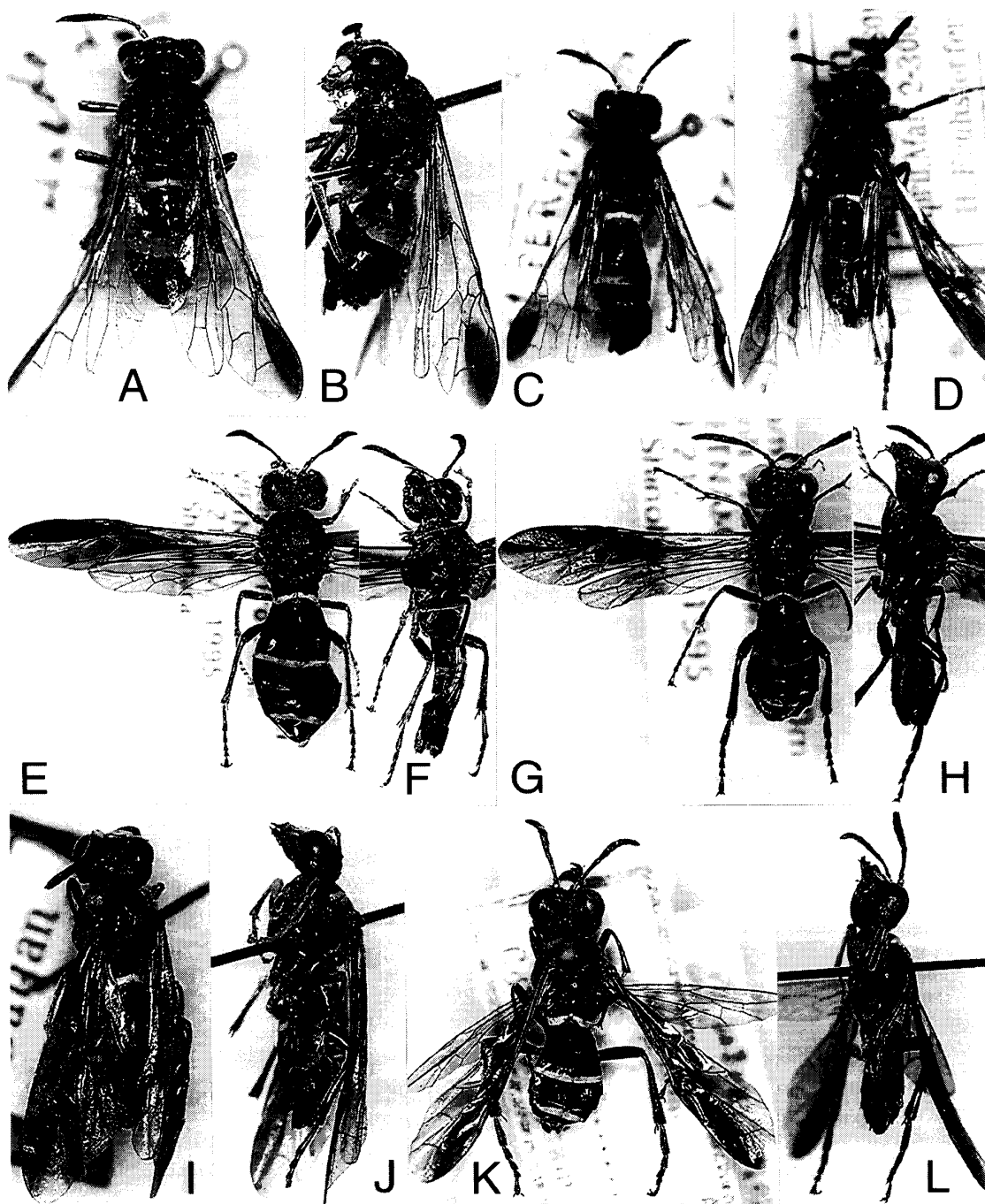


Fig. 3. *Tenthredo* spp. — A–B, *T. rugulosa* (Mocsáry), ♀, Sumatra, length 10 mm; C, do., ♀, lectotype; D, *T. tonkinensis* (Mocsáry), ♂, lectotype; E–F, do., ♀, Vietnam, 15 mm; G–H, do., ♂, Vietnam, 10.5 mm; I–J, *T. blanki* sp. nov., ♀, paratype, 11.5 mm; K–L, do., ♂, holotype, 10 mm.

Head: anterior margin of clypeus rather narrowly, roundly emarginate at middle; OOL : POL : OCL = 2.6 : 1.0 : 2.2; postgenal carina entire, sharply carinate all around. Thorax: mesoscutellum roundly convex, without distinctly pointed apex. Upper part of head and mesoscutum covered with very dense, large, deep, irregular punctures, but with narrow shining interspaces; lateral surface of mesepisternum very densely, roughly punctate, without flattened interspaces between punctures. Abdomen: 2nd and 3rd terga normal, not divided by a longitudinal carina; constriction between propodeum and 2nd tergum rather weak. Apical margin of sawsheath rounded ventrally (Fig. 10 E); saw stout, sickle-shaped (Fig. 12 C–D).

*Male* (paratopotype). Length 13 mm. Head black, with clypeus excepting very narrow outer margin yellowish white; labrum yellowish white, with very narrow outer margin black; mandible black with outer surface yellowish white and apex rufous. Antenna black throughout. Thorax black, with minute fading spot at each dorsolateral corner of pronotum, and most of metepisternum yellowish white. Legs black, with the following yellowish white: fore coxa excepting narrow basis, ventral (anterior) surface of fore trochanter, anterior surface of fore femur, anterior (ventral) surface of fore tibia, fore tarsus excepting small parts of dorsal surface, mid coxa excepting narrow basis, ventral surface of mid trochanter, anterior surface of mid femur (more widely towards apex), ventral surface of mid tibia, mid tarsus excepting narrow dorsal surface, posterior margin and its anterior extension along inner margin of hind coxa, ventral surface of hind trochanter, and small elongate spot at base of hind femur. Forewing strongly infuscated from base to apex, with cells R, 1A, 2A, lower halves of 2Rs and 3Rs, and 2M and 3M more weakly infuscated to hyaline; hindwing rather weakly infuscated; veins and stigma blackish brown. Abdomen black, with the following yellowish white: posterior 1/3 of propodeum, lateral spot at posterior margin of 3rd tergum, posterior 1/3 of 4th tergum, minute spot at posteroventral corner of 5th tergum, small spot at ventral margin of 6th tergum, small spot at ventral margin and large median subtriangular spot at posterior margin of 7th tergum, large transverse spot at posterior margin of 8th tergum, narrow posterior margin of each of 2nd and 3rd sterna, posterior 1/2 of 4th sternum, posterior 3/4 of 5th sternum, 6th sternum excepting mediobasal part, visible part of 7th and 8th sterna, and subgenital plate excepting narrow lateral parts and narrow subapical margin.

Structure similar to that of female except for sexual differences; OOL : POL : OCL = 2.7 : 1.0 : 2.4. Genital cavity widely open and valviceps well visible from outside (Fig. 14 A–B). Genitalia as in Fig. 15; valviceps equipped with horn-like dorsal process.

Holotype. ♀, Tam Dao, 960–1,230 m, Vinh Phu Prov., 19–21. V. 1995, A. Shinohara leg. (NSMT).

Paratypes. 50 ♀, 32 ♂, same data as for holotype (NSMT); 10 ♀, 4 ♂, same data, except for A. Saito leg. (NSMT); 6 ♀, same data, except for S. Uéno leg. (NSMT); 1 ♂, same locality, 30. IV–7. V. 1996, Y. Okushima leg. (Kurashiki Museum).

*Other material examined.* 1 ♂, “Sikkim 4000 Ft. 4.94.,” “Col. C. T. Bingham, 96-30.,” “British Museum,” “*Allantus scrobiculatus* Knw., Malaise det., 1935.” (NRS).

*Distribution.* Northern Vietnam, India (Sikkim).

*Variation.* The females vary in length from 12.5 to 16.5 mm and the males from 11.5 to 14 mm. In coloration and structure, the Vietnamese specimens examined are quite stable; the pale spots on the pronotum are often missing. One male from Sikkim differs from the Vietnamese males in that the pronotum has a large yellowish white marking at each dorsolateral corner and another large spot of the same color on each lateral surface, and each of the 5th to 8th abdominal terga dorsally has a rather narrow stripe along the posterior margin. In Vietnamese males, the pronotum is entirely black or has only a small elongate spot in dorsolateral area, the 5th and 6th abdominal segments have no pale posterior margins dorsally, and each of the 7th and 8th terga has a large pale marking.

*Etymology.* This new species is named after Dr. A. Saito, The Natural History Museum and Institute, Chiba, who collected the first specimen of this sawfly. The epithet *acco* is her nickname.

*Remarks.* With its dark color pattern, this new species may resemble *T. scrobiculata* or *T. abatae*, both known from females only, but the presence of distinct upper postgenal carina, pale-colored clypeus (Fig. 6 E), only roundly convex mesoscutellum, and more densely punctate head and thorax (Figs. 4 E–F, 8 E–F) will easily distinguish *T. acco* from the latter two species.

Most of the specimens from Vietnam were captured from the flower tufts of *Lithocarpus* trees on the summit of Mt. Tam Dao about 1,230 meters high. Only a few specimens were found in other habitats even at the same site. Another species of this group, *T. tonkinensis*, was collected together on the same flower tufts. It is a little smaller and slenderer sawfly but it was almost indistinguishable from *T. acco* in the field without magnifiers. Despite such a great similarity in general appearance, however, the two species are rather distantly related, *T. acco* belonging to the *scrobiculata* subgroup and *T. tonkinensis* to the *rugulosa* subgroup. Thus the former species is readily separated from the latter by the roundly incised clypeus (Fig. 6 E–F), absence of the median fold-like structure on the 2nd and 3rd abdominal terga (Fig. 2 G), rather short, ventroapically rounded sawsheath (Fig. 10 E), very broad, sickle-shaped saw (Fig. 12 C), and presence of the horn-like dorsal process on each of the penis valve (Fig. 14 A–B). It is most interesting that the two closely resembling but rather distantly related species coexist in one place. This is probably a good example of Batesian mimicry or “regional convergence,” though curiously a likely “model” wasp was not found at the site.

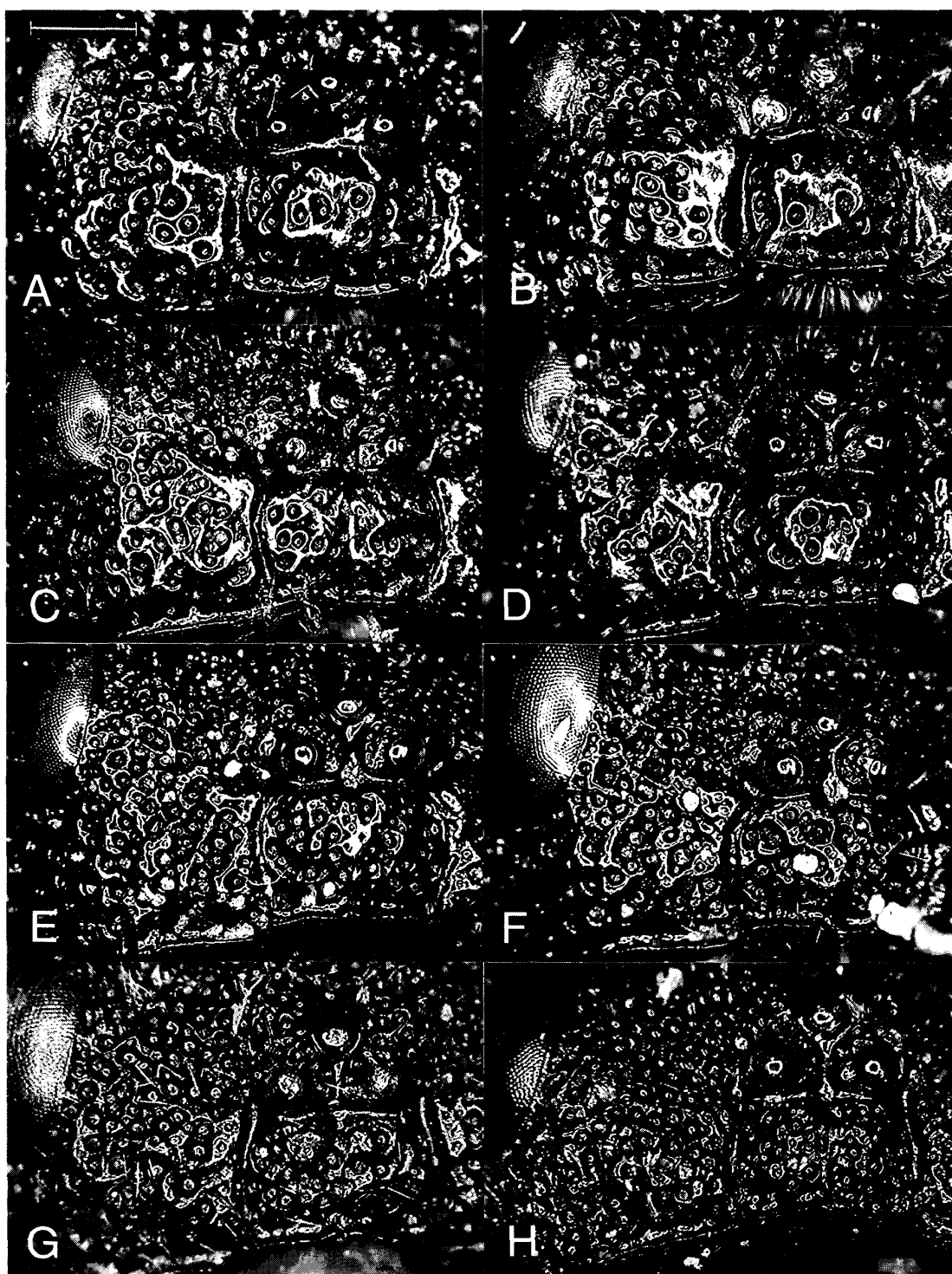


Fig. 4. *Tenthredo* spp., upper part of head. — A, *T. scrobiculata* (Konow), ♀, lectotype; B, *T. abatae* (Togashi), ♀, holotype; C, *T. largifasciata* (Konow), ♀, Sikkim; D, do., ♂, Sikkim; E, *T. acco* sp. nov., ♀, holotype; F, do., ♂, paratopotype; G, *T. sumatrana* (Forsius), ♀, paratype; Sumatra; H, *T. borneo* sp. nov., ♀, holotype. Scale: 0.4 mm.

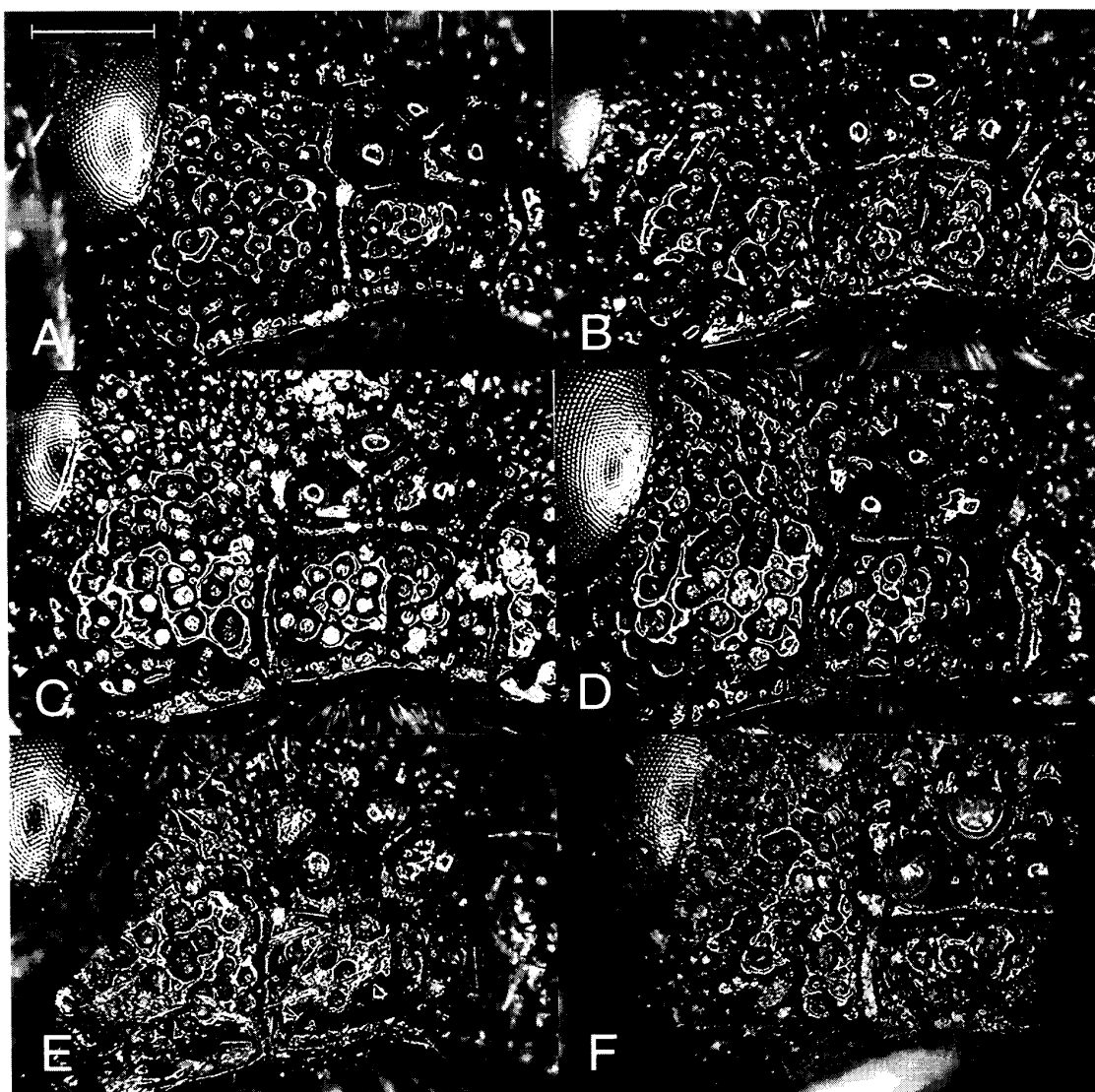


Fig. 5. *Tenthredo* spp., upper part of head. — A, *T. niisatoi* sp. nov., ♂, holotype; B, *T. rugulosa* (Mocsáry), ♀, Sumatra; C, *T. tonkinensis* (Mocsáry), ♀, Vietnam; D, do., ♂, Vietnam; E, *T. blanki* sp. nov., ♀, paratype; F, do., ♂, holotype. Scale: 0.4 mm.

***Tenthredo sumatrana* (Forsius)**

(Figs. 2 A–B, 4 G, 6 G, 8 G, 10 F–G)

*Allantus sumatranus* Forsius, 1935, p. 31.

*Tenthredo sumatrana*: Malaise, 1945, p. 254.

*Type material examined.* 1 ♀ (paratype), “Sumatra, Si-Rambé, XII. 90–III. 91, E. Modigliani,” “Paratypus” [red], “*Allantus sumatranus* n. sp., ♀, Paratypus, R. Forsius det.” (NRS).

*Distribution.* Sumatra.

*Remarks.* This Sumatran endemic species is known only from the type series

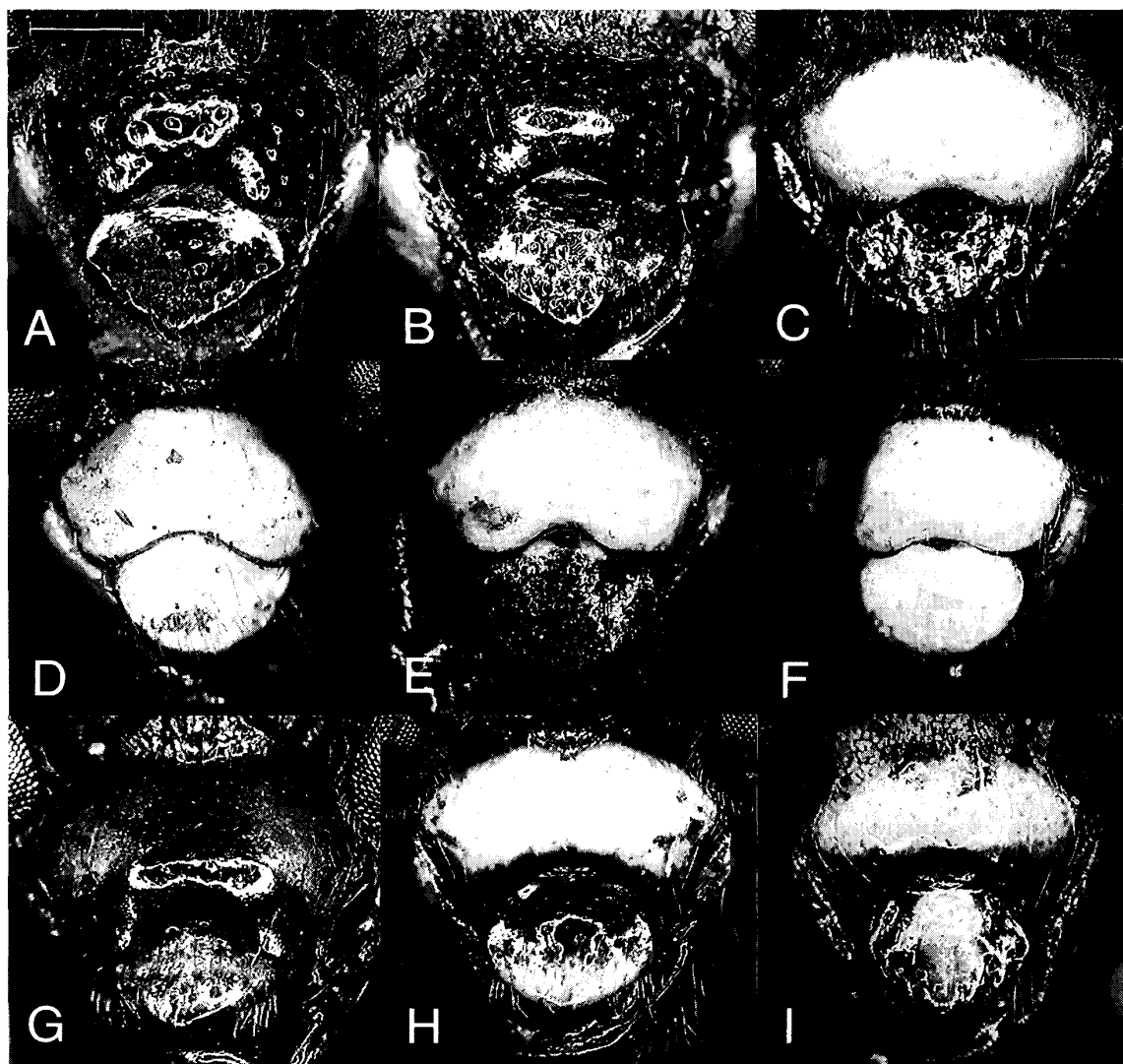


Fig. 6. *Tenthredo* spp., clypeus and labrum. — A, *T. scrobiculata* (Konow), ♀, lectotype; B, *T. abatae* (Togashi), ♀, holotype; C, *T. largifasciata* (Konow), ♀, Sikkim; D, do., ♂, Sikkim; E, *T. acco* sp. nov., ♀, holotype; F, do., ♂, paratype; G, *T. sumatrana* (Forsius), ♀, paratype; Sumatra; H, *T. borneo* sp. nov., ♀, holotype; I, *T. niisatoi* sp. nov., ♂, holotype. Scale: 0.4 mm.

consisting of the holotype and a paratype, both females with the same collection data. I have examined the paratype (Fig. 2 A–B), which is in a good state, though the entire left antenna, claws of the right mid tarsus and the entire right hind tarsus are missing.

*Tenthredo sumatrana* is closely allied to *T. borneo* and *T. niisatoi* both described from Borneo based on a single specimen each. These three species are distinguishable by the features given in the key and I treat them as specifically distinct in this paper. As stated under the latter two species, however, the three “species” are closely related indeed and we need more material to ascertain their specific validity.



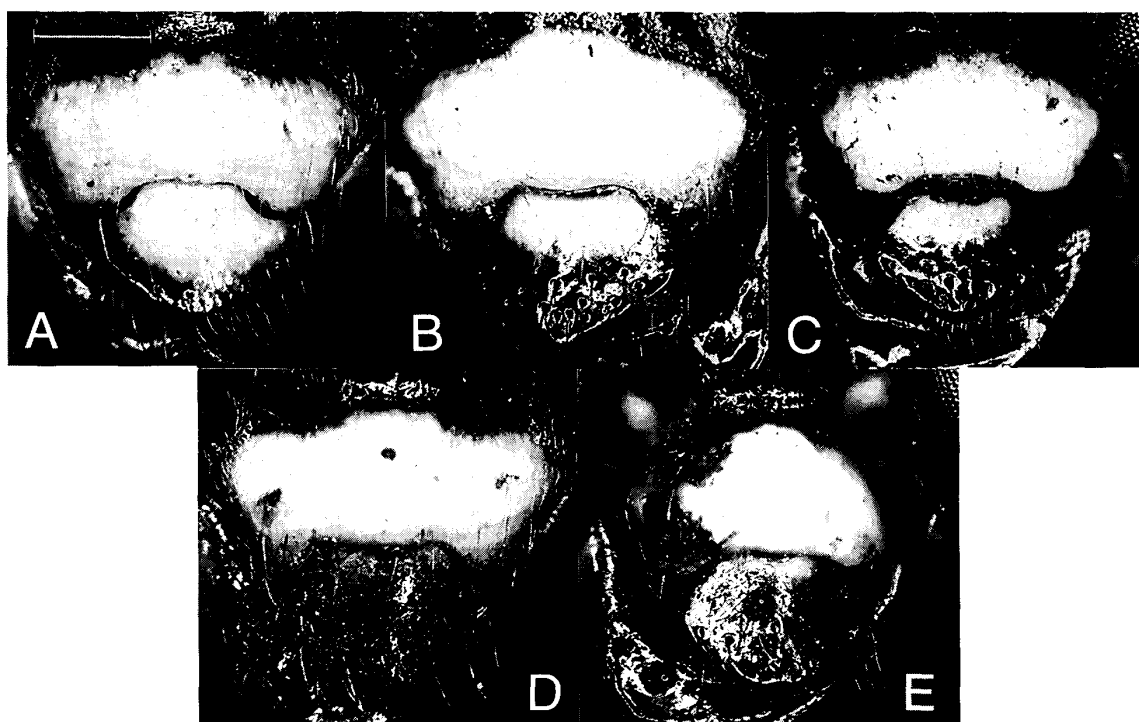


Fig. 7. *Tenthredo* spp., clypeus and labrum. — A, *T. rugulosa* (Mocsáry), ♀, Sumatra; B, *T. tonkinensis* (Mocsáry), ♀, Vietnam; C, do., ♂, Vietnam; D, *T. blanki* sp. nov., ♀, paratype; E, do., ♂, holotype. Scale: 0.4 mm.

***Tenthredo borneo* sp. nov.**

(Figs. 2 C–D, 4 H, 6 H, 8 H, 10 H)

*Female* (holotype). Length 10 mm. Head black, with clypeus excepting narrow outer margin, supraantennal tubercle, and minute fading spot at outer orbit yellowish white; labrum black, with anterior 1/3 and very small paired marking basally yellowish white; mandible black with outer surface yellowish white and apex rufous. Antenna black, with scape excepting radicula yellowish white. Thorax black, with large spot at each dorsolateral corner of pronotum, large spot on lateral pronotum, very narrow posterior margin of venter of cervical sclerite, posterior 1/3 of tegula, meso-scutellar appendage, very large spot on lateral surface of mesepisternum, lateral surface of metepisternum yellowish white. Legs black, with the following dark yellowish white: apical margin and stripe along outer margin of fore coxa, most of fore trochanter, broad stripe on anterior surface of fore femur, fore tibia excepting dorsoapical part, fore tarsus excepting small parts of dorsal surface, posterior margin of mid coxa, mid trochanter, stripe on anterior surface of mid femur, mid tibia excepting dorsoapical part, mid tarsus excepting narrow dorsal surface, posterior 1/2 of hind coxa, hind trochanter, obscure stripe on dorsal surface of hind femur, hind tibia excepting dorsoapical part, and hind tarsus excepting narrow dorsal surface. Wings sub-

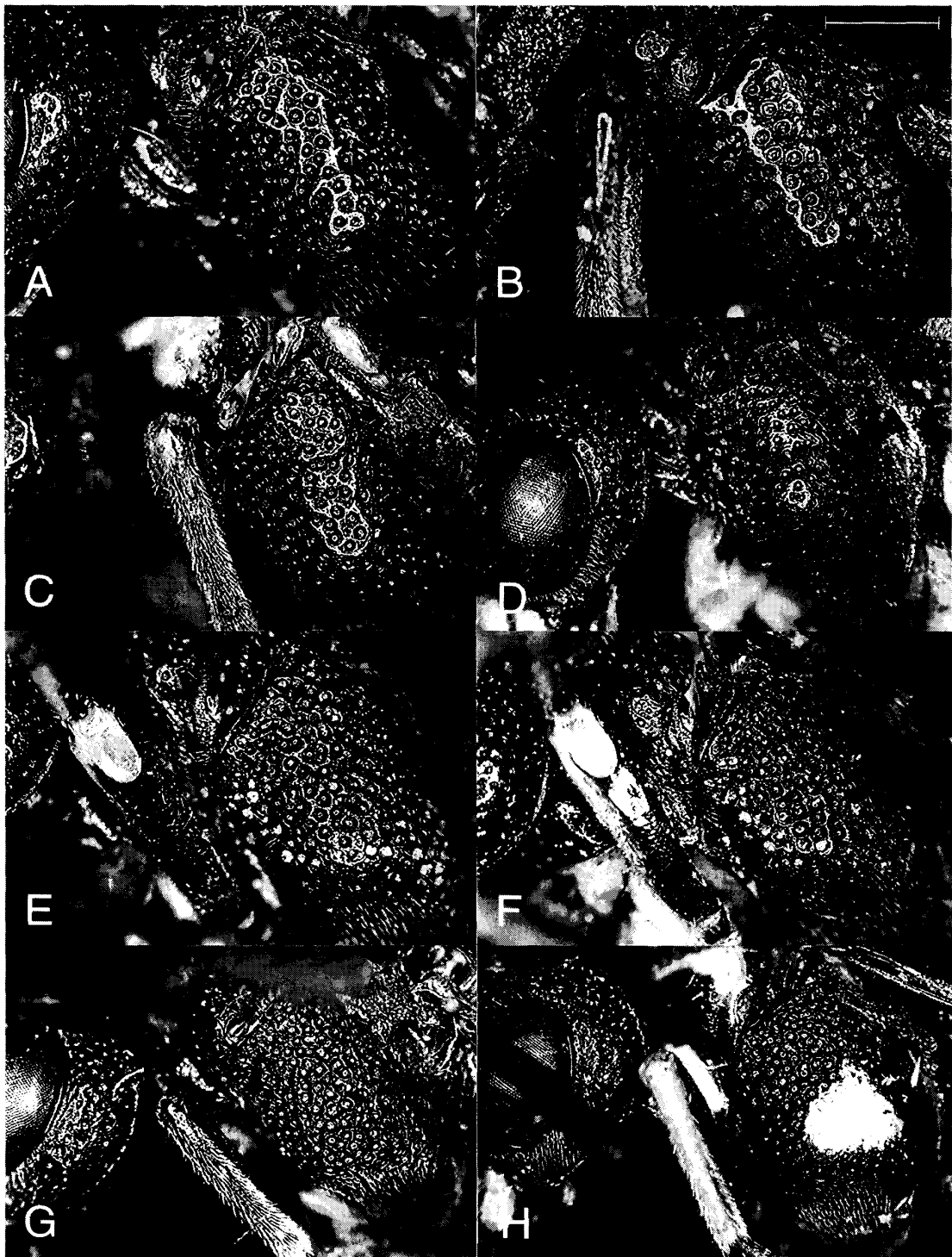


Fig. 8. *Tenthredo* spp., lateral part of thorax. — A, *T. scrobiculata* (Konow), ♀, lectotype; B, *T. abatae* (Togashi), ♀, holotype; C, *T. largifasciata* (Konow), ♀, paralectotype, Sikkim; D, do., ♂, Sikkim; E, *T. acco* sp. nov., ♀, holotype; F, do., ♂, paratopotype; G, *T. sumatrana* (Forsius), ♀, paratype, Sumatra; H, *T. borneo* sp. nov., ♀, holotype. Scale: 1 mm.

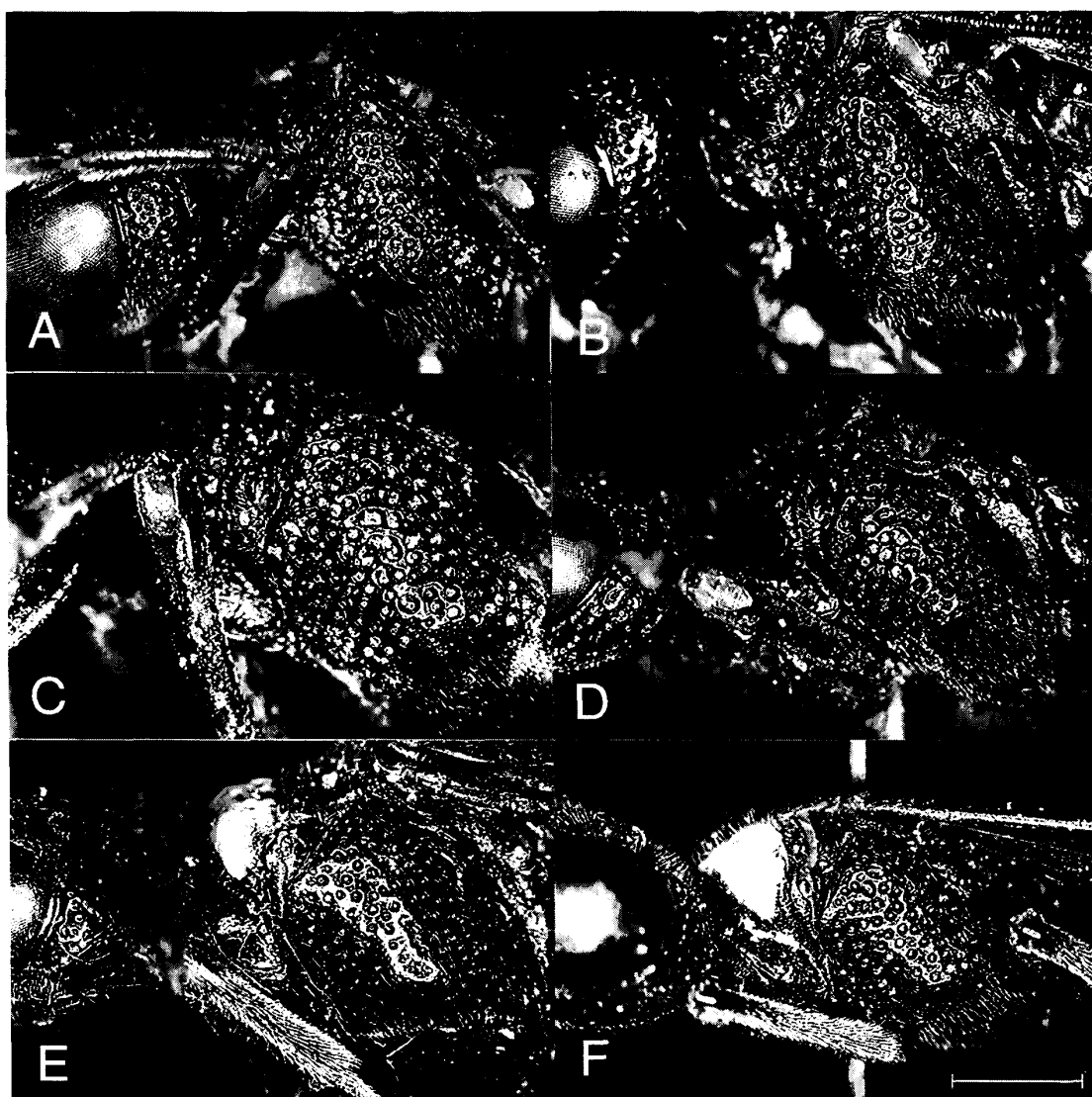


Fig. 9. *Tenthredo* spp., lateral part of thorax. — A, *T. niisatoi* sp. nov., ♂, holotype; B, *T. rugulosa* (Mocsáry), ♀, Sumatra; C, *T. tonkinensis* (Mocsáry), ♀, Vietnam; D, do., ♂, Vietnam; E, *T. blanki* sp. nov., ♀, paratype; F, do., ♂, holotype. Scale: 1 mm.

hyaline; forewing with distinct infuscation along vein Rs (Fig. 2 C–D); veins and stigma blackish brown; vein C and apical part of stigma somewhat paler. Abdomen black, with the following yellowish white: posterior 3/4 of propodeum, large lateral spot at posterior margin of 3rd tergum, posterior 1/3–1/2 (laterally 2/3) of 4th tergum, posterior 1/4–1/3 (laterally 1/2) of 5th tergum, large median transverse spot at posterior margin of each of 6th to 9th terga, and most of sterna excepting 2nd.

Head: anterior margin of clypeus rather narrowly, roundly emarginate at middle; OOL : POL : OCL = 2.6 : 1.0 : 2.2; postgenal carina entire, sharply carinate all around. Thorax: mesoscutellum roundly convex, without distinctly pointed apex. Upper part

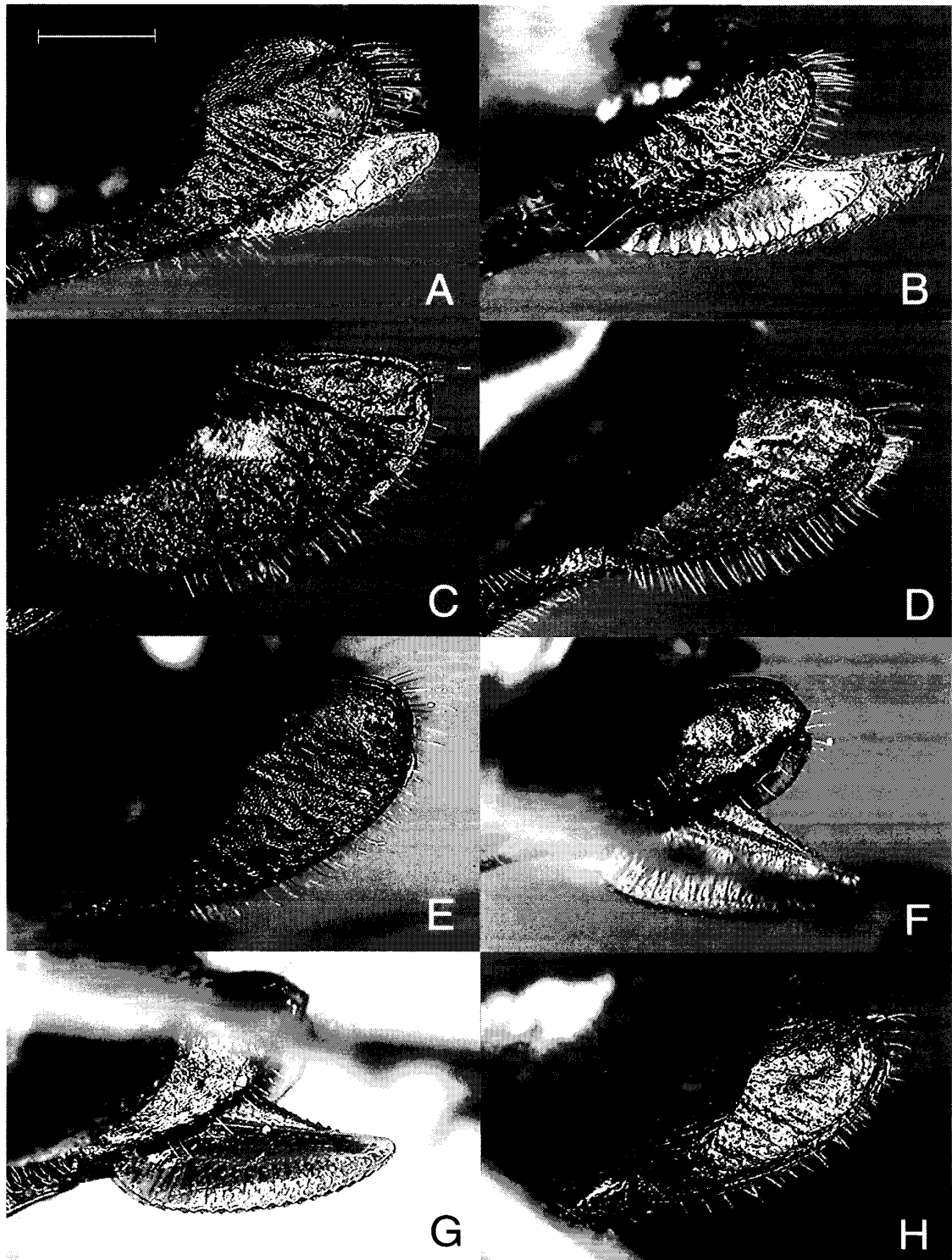


Fig. 10. *Tenthredo* spp., ♀, sawsheath, lateral view. — A, *T. scrobiculata* (Konow), lectotype; B, do., China; C, *T. abatae* (Togashi), holotype; D, *T. largifasciata* (Konow), Sikkim; E, *T. acco* sp. nov., holotype; F, *T. sumatrana* (Forsius), paratype; G, do., from different angle; H, *T. borneo* sp. nov., holotype. Scale: 0.4 mm.

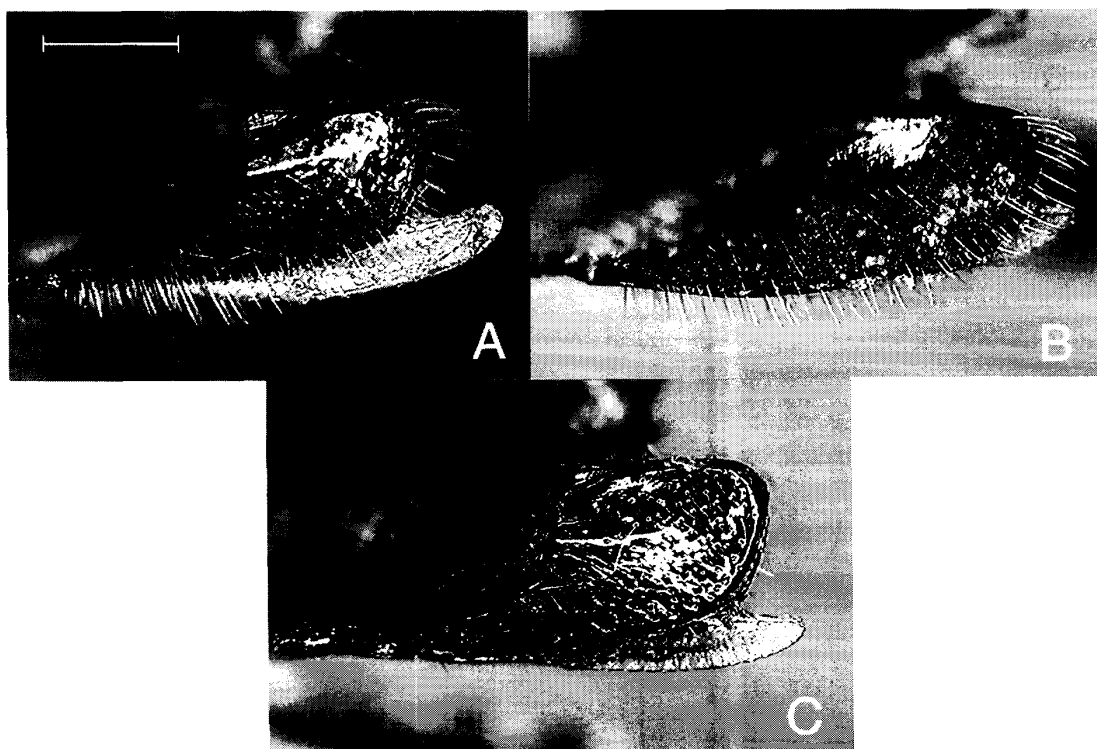


Fig. 11. *Tenthredo* spp., ♀, sawsheath, lateral view. — A, *T. rugulosa* (Mocsáry), Sumatra; B, *T. tonkinensis* (Mocsáry), Vietnam; C, *T. blanki* sp. nov., paratype. Scale: 0.4 mm.

of head and mesoscutum covered with very dense, large, deep, irregular punctures, without distinct interspaces; lateral surface of mesepisternum very densely, roughly punctate, without flattened interspaces between punctures. Abdomen: Second and 3rd terga normal, not divided by a longitudinal carina; constriction between propodeum and 2nd tergum rather weak. Apical margin of sawsheath rounded ventrally (Fig. 10 F); saw stout, sickle-shaped (Fig. 10 G).

*Male.* Unknown.

*Holotype.* ♀, "British N. Borneo, Tenompok, 1460 m, Jesselton, 30 mi. E., I-26-31-1959," "T. C. Maa Collector Mo.," "*Tenthredo sumatrana* Fors., ♀, det. R. B. Benson, 1956" (BMNH).

*Distribution.* Borneo.

*Etymology.* This new species is named after its type locality.

*Remarks.* This Bornean new species is closely similar to *T. sumatrana* from Sumatra in structure, but large differences in color pattern as given in the key will easily separate them. Though I am treating these two allopatric forms as distinct species here, I cannot entirely deny the possibility that they are actually conspecific, each representing a subspecies. Further information is needed for clarifying the true relationship of the two "species."

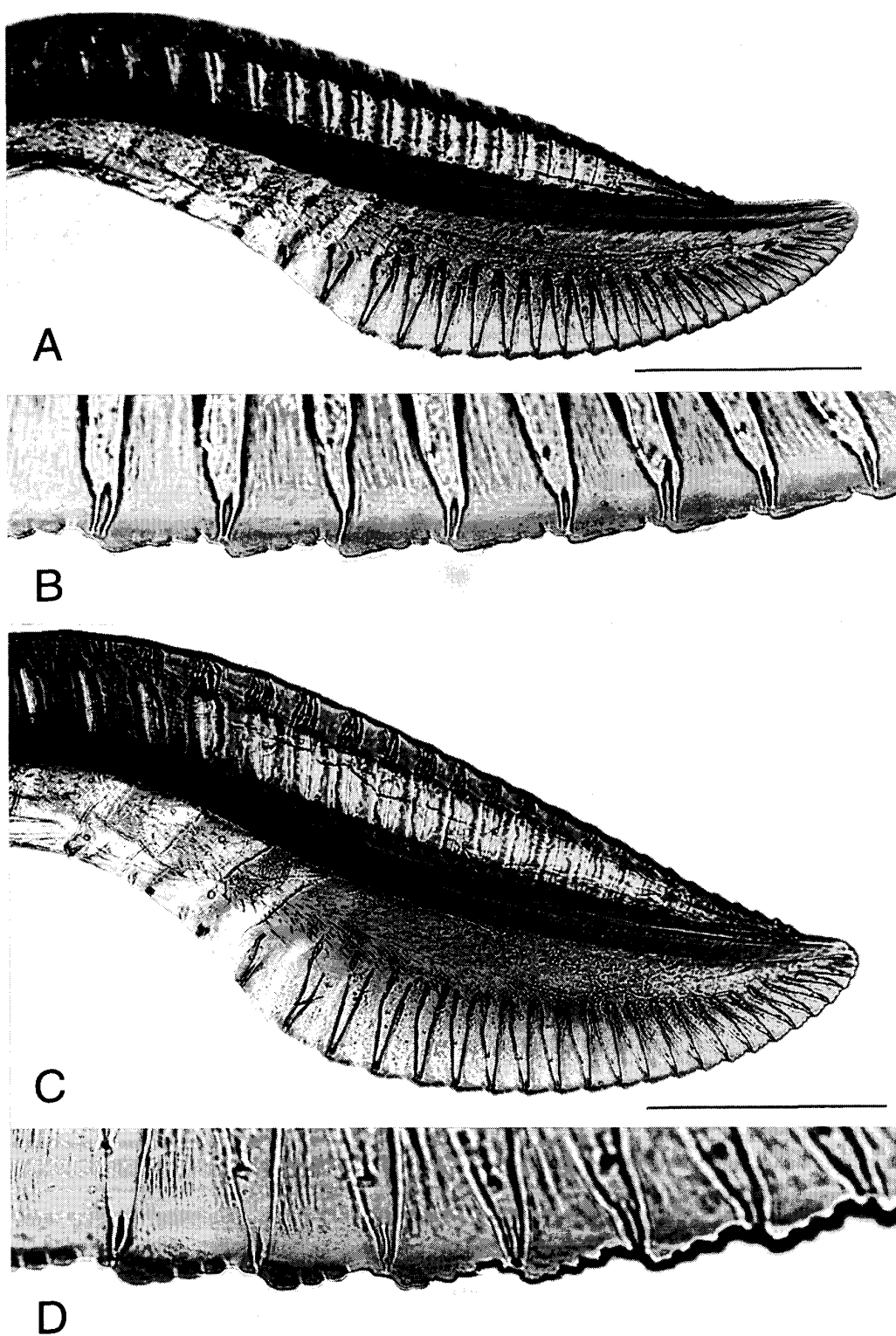


Fig. 12. *Tenthredo* spp., ♀, saw, lateral view. — A, *T. largifasciata* (Konow), Sikkim; B, do., 11th to 18th serrulae of lancet; C, *T. acco* sp. nov., paratopotype; D, do., 9th to 15th serrulae of lancet. Scales for A and C: 0.4 mm.

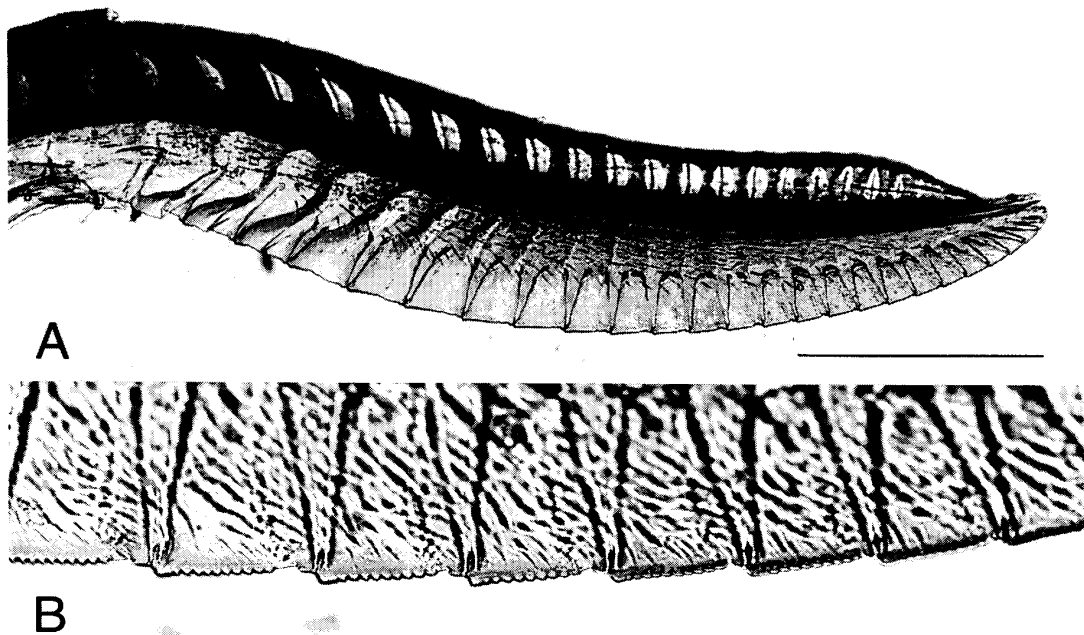


Fig. 13. *Tenthredo tonkinensis* (Mocsáry), Vietnam, ♀, saw, lateral view (A) and 9th to 15th serrulae of lancet (B). Scale for A: 0.4 mm.

***Tenthredo niisatoi* sp. nov.**

(Figs. 2 E–F, 5 A, 6 I, 9 A, 14 C–D)

*Male* (holotype). Length 8.5 mm. Head black; supraantennal tubercle mostly yellowish white; clypeus yellowish white, with broad ventral and narrow dorsal margins black; labrum yellowish white, with broad lateral parts as well as ventral and dorsal margins black; mandible black, with outer surface whitish and apex rufous. Antenna black; scape yellowish white, partly more or less infuscated and radicle black. Thorax black; pronotum with margins of dorsolateral corners and obscure spot on each lower lateral surface yellowish white; lateral surface of metepisternum mostly yellowish white. Legs blackish brown to black, with the following yellowish white: very narrow apical parts of fore coxa and trochanter, inner surfaces of fore femur and tibia, most of fore tarsus, narrow apical margin of mid coxa, mid trochanter excepting its basis, broad stripe along anterior surface of mid femur, ventral (anterior) surface of mid tibia, mid tarsus excepting its dorsal surface, apical part of hind coxa, and hind trochanter excepting basal and dorsal parts. Wings subhyaline; forewing with basal infuscation on cell 1Cu and large, more distinct infuscation along vein Rs (Fig. 2 E–F); veins blackish brown; vein C and stigma dark brown. Abdomen black, with broad posterior margin of propodeum, narrow posterior margin of each tergum laterally (only 4th and two or three caudal terga with the narrow posterior margin pale all around) and broad posterior margin of each sternum yellowish white; subgenital plate

black, with narrow posterior margin pale.

Head: anterior margin of clypeus roundly emarginate at middle; OOL:POL:OCL=2.2:1.0:1.9; postgenal carina entire, carinate all around. Thorax: mesoscutellum roundly convex, without distinctly pointed apex. Upper part of head and mesoscutum covered with dense, large, deep, irregular punctures, with narrow shining interspaces; lateral surface of mesepisternum with large, rather widely spaced punctures, interspaces between them flattened, rather smooth, with sparse minute punctures. Abdomen: 2nd and 3rd terga normal, not divided by a longitudinal carina; constriction between propodeum and 2nd tergum rather weak. Genital cavity widely open and valviceps well visible from outside; valviceps equipped with horn-like dorsal process (Fig. 14 C–D).

*Female.* Unknown.

Holotype: ♂, “Kimanis Road, 105 miles from Keningau, ca.1,000 m alt., Crocker Range, Borneo, Sabah, E. Malaysia, 17. III. 1988, T. Niisato leg.” (NSMT).

*Distribution.* Borneo.

*Etymology.* This new species is named after Mr. T. Niisato, Tokyo, who collected the holotype.

*Remarks.* This new species is described on the basis of a single male holotype, whose penis valve is provided with a conspicuous horn-like process characteristic of the species of the *scrobiculata* subgroup. Within this subgroup, males are known for two continental species, *T. largifasciata* and *T. acco*. *Tenthredo niisatoi* is easily separable from these species by its smaller size and by the combination of characters given in the key.

*Tenthredo niisatoi* is apparently closely allied to *T. sumatrana* from Sumatra and *T. borneo* from Borneo, both known only from the females. There is a narrow possibility that *T. niisatoi* is the male of *T. borneo*, but this appears very unlikely to me because the differences in the coloration of the thorax and abdomen (Fig. 2 C–D and E–F) and the punctuation of the head (Figs. 4 H and 5 A) and mesepisternum (Figs. 8 H and 9 A) are fairly large, well exceeding the known sexual differences in *T. largifasciata* or *T. acco*.

### *Tenthredo rugulosa* (Mocsáry)

(Figs. 3 A–C, 5 B, 7 A, 9 B, 11 A)

*Allantus rugulosus* Mocsáry, 1909, p. 23.

*Tenthredo rugulosa*: Malaise, 1945, p. 254.

*Type material examined.* ♀ (lectotype; hereby designated), “Perak/Malaka/1984, *Allantus* n. sp., ♀,” “Typus, *Allantus rugulosus* Mocs.,” “*Allantus rugulosus* Mocs.,” “Lectotype, *Allantus rugulosus* Mocsáry, 1909, Det. A. Shinohara, 1996” (HNHM); 1 ♀, “Sumatra,” “*Tenthredo rugulosa* (Mocs.), R. Malaise det., 1956” (NRS).



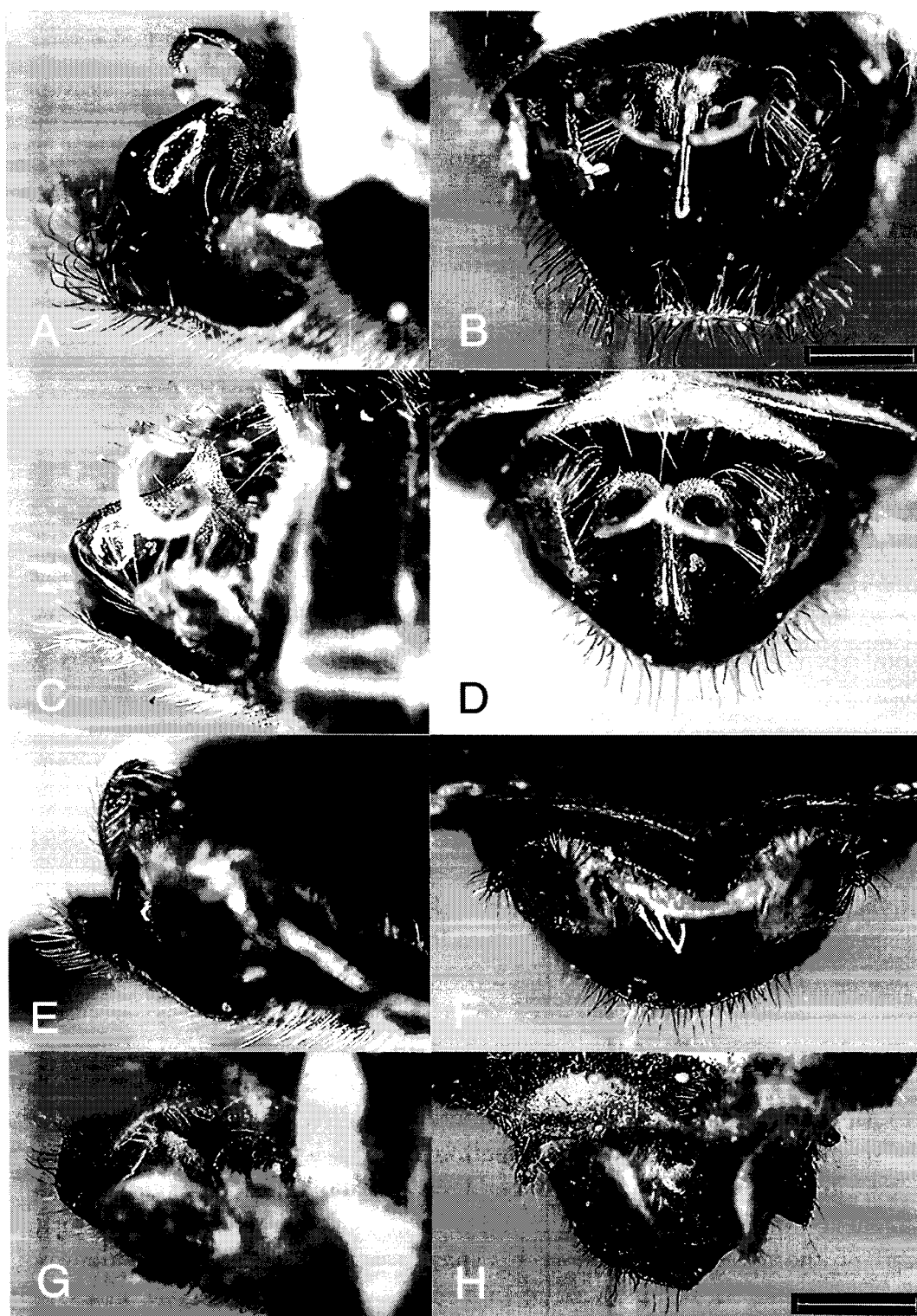


Fig. 14. *Tenthredo* spp., ♂, tip of abdomen, dorsolateral (A, C, E, G) and posterior dorsal (B, D, F, H) view. — A–B, *T. acco* sp. nov., paratype; C–D, *T. niisatoi* sp. nov., holotype; E–F, *T. tonkinensis* (Mocsáry), Mt. Tam Dao; G–H, *T. blanki* sp. nov., holotype. Scale for A–B: 0.4 mm; scale for C–H: 0.4 mm.

*Distribution.* Malay Peninsula, Sumatra.

*Remarks.* Mocsáry (1909) described this species based on the unknown number of female specimens from “Malacca: Perak.” I have examined a syntype (Fig. 3 C), which was shown by Malaise (1945) in his excellent photograph on the Plate XIX, and hereby designate it as the lectotype. Besides the type material, there is only one additional specimen recorded in literature, which is the Sumatran specimen (Fig. 3 A–B) listed above.

This species is distinguished from the other two species of the *rugulosa* subgroup by the largely hyaline wings (forewing with only a large, sharply limited apical infuscation and a much smaller, rather inconspicuous basal infuscation) and the entirely black 7th abdominal tergum (Fig. 3 A–C).

***Tenthredo tonkinensis* (Mocsáry), sp. rev.**

(Figs. 2 H, 3 D–H, 5 C–D, 7 B–C, 9 C–D, 11 B, 13, 14 E–F, 16)

*Allantus tonkinensis* Mocsáry, 1909, p. 24.

*Tenthredo tonkinensis*: Malaise, 1945, p. 255 [as syn. of *scrobiculata*].

*Type material examined.* ♂ (lectotype; hereby designated), “Tonkin, Montes Mauson, April Mai, 2-3000, H. Fruhstorfer,” “Typus, *Allantus tonkinensis* Mocs.,” “*Allantus tonkinensis* Mocs.,” “Lectotype, *Allantus tonkinensis* Mocsáry, 1909, Det. A. Shinohara, 1997” (HNHM).

*Other material examined.* 3 ♀, 3 ♂, Tam Dao, 960–1,230 m, Vinh Phu Prov., Vietnam, 19–21. V. 1995, A. Shinohara leg. (NSMT); 1 ♀, 1 ♂, same data, except for A. Saito leg. (NSMT); 1 ♀, same locality, 18. VI. 1997, M. Owada leg. (NSMT).

*Distribution.* Northern Vietnam.

*Remarks.* Mocsáry (1909) described this species based on the unknown number of specimens of both sexes from “Tonkin: Montes Mauson, vere in altitudine 2-3000 pedum.” A male syntype examined (Fig. 3 D) has the head probably malformed; the posterior edge of postocellar area (part of postgenal carina) is strongly raised, forming a transverse crest, cut off on each side from lateral portion of the postgenal carina. Both the eyes of this specimen have been lost due to infestation of an insect pest. In Mocsáry’s collection in HNHM, there is another specimen, possibly a female of this species, bearing the same collection label but no identification label. This could possibly be a female syntype but I do not treat it as a syntype, because 1) Mocsáry usually put his identification label to all the type material, 2) unfortunately the head, prothorax and abdomen of this specimen are missing and its identity is uncertain, and 3) the mesoscutellum of this female is more strongly convex than the syntype male, thus suggesting that the two specimens may not be conspecific. I hereby designate the male as the lectotype. Besides the possible abnormality, the lectotype agrees with the male specimens from Mt. Tam Dao.

Superficially, this species closely resembles *T. acco*, with which it occurs togeth-

er on the summit of Mt. Tam Dao at about 1,230 meters visiting the flower tufts of the same *Lithocarpus* trees. As noted under *T. acco*, *T. tonkinensis* belongs to the *rugulosa* subgroup and *T. acco* to the *scrobiculata* subgroup. Malaise (1945) treated *T. tonkinensis* as a synonym of *T. scrobiculata* but the latter species is a member of the *scrobiculata* subgroup. *Tenthredo tonkinensis* can be separated from *T. scrobiculata* and *T. acco* by the characters of the subgroups. Within the *rugulosa* subgroup, *T. tonkinensis* is distinguished by a combination of the entirely black pronotum, largely infuscated wings (Fig. 3 D–H), and coarsely and very densely punctate mesepisternum (Fig. 9 C–D).

***Tenthredo blanki* sp. nov.**

(Figs. 3 I–L, 5 E–F, 7 D–E, 9 E–F, 11 C, 14 G–H)

*Female* (paratype). Length 11.5 mm. Head black, with clypeus excepting very narrow outer margin yellowish white; labrum black, midbasally rather obscurely yellowish white; mandible black with outer surface yellowish white and apex rufous. Antenna black, with scape excepting radicle yellowish white. Thorax black, with very large spot at each dorsolateral corner of pronotum and very narrow posterior margin of venter of cervical sclerite yellowish white; tegula dark brown. Legs black, with the following dark yellowish white: narrow apical margin of fore coxa, anterior surfaces of fore femur and fore tibia, fore tarsus excepting very narrow apex of each segment, posterior margin of mid coxa, large, apically widened marking on anterior surface of mid femur, ventral surface of mid tibia, mid tarsus excepting narrow apex of each segment, and broad posterior margin of hind coxa; mid and hind trochanters apically and mid and hind trochantelli more or less pale-marked. Wings subhyaline; forewing with basal infuscation on cell 1Cu and large infuscation along vein Rs, covering radial cells, two dark areas more or less continuous (Fig. 3 I); veins blackish brown; vein C and stigma dark brown. Abdomen black, with the following yellowish white: posterior 3/4 of propodeum, very obscure, small lateral spot at posterior margin of 3rd tergum, posterior 1/3–1/2 of 4th tergum, posterior 1/4–1/3 of 5th tergum (medially interrupted), narrow, partly fading stripe along posterior margin of 6th tergum, posterior 1/3–1/2 of 7th tergum (laterally obsolete), large median transverse spot at posterior margin of 8th and 9th terga, and posterior 1/3 of 4th sternum.

Head: anterior margin of clypeus deeply, broadly emarginate, with median part (bottom of emargination) slightly produced (Fig. 7 D); OOL : POL : OCL = 2.3 : 1.0 : 2.0; postgenal carina rather bluntly but distinctly defined all around. Upper part of head covered with rather dense, large, deep, irregular punctures, with shiny interspaces. Thorax: mesoscutellum roundly, rather weakly convex, without pointed apex. Mesoscutum with very large, deep, irregular punctures with smooth interspaces on median lobe and anterior inner part of lateral lobes, and small, generally shallow punctures with broad smooth interspaces in other parts of lateral lobes; lateral part of

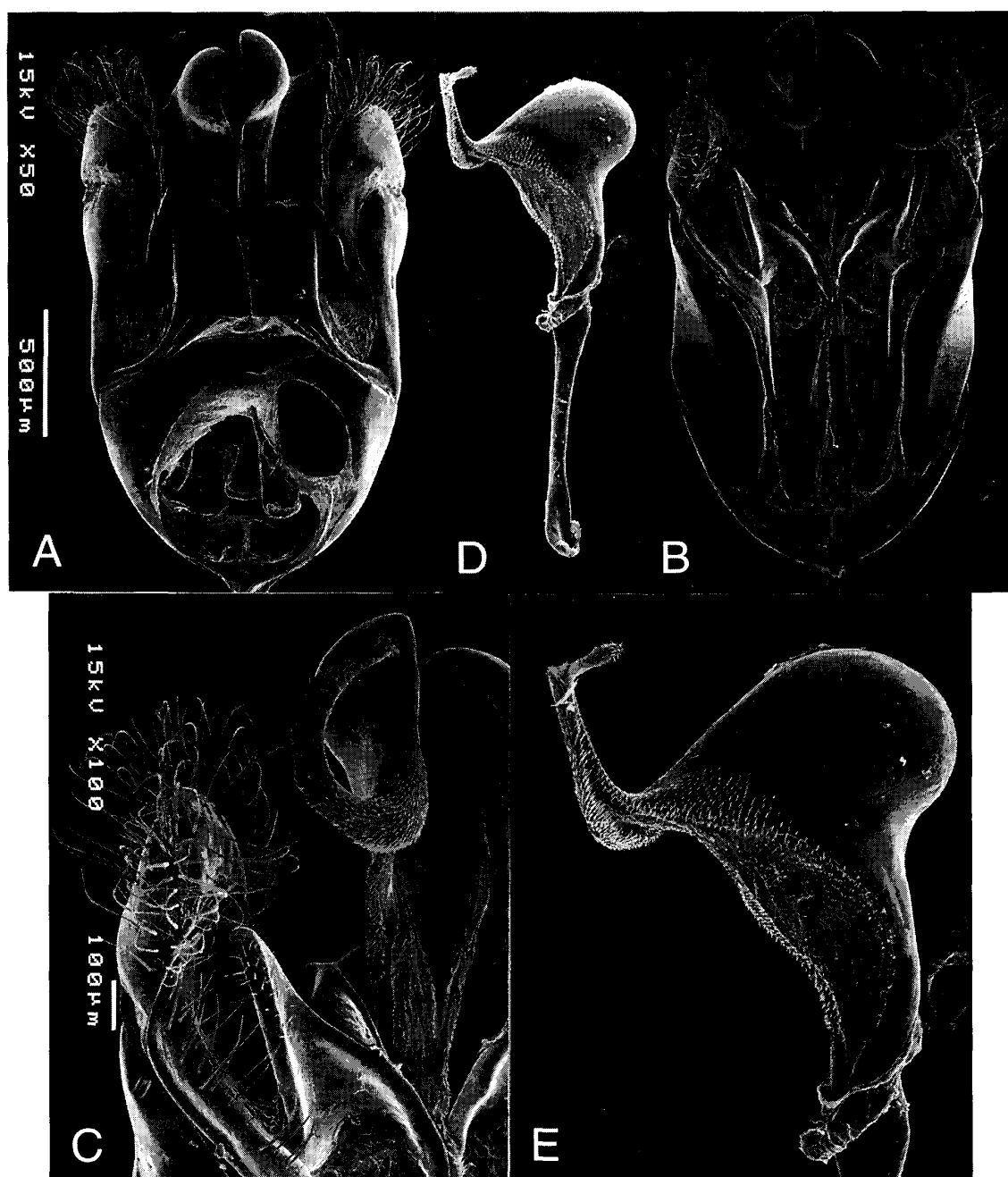


Fig. 15. *Tenthredoacco* sp. nov., ♂, paratype, genitalia. — A, ventral view; B, dorsal view; C, posterior part, dorsal view; D, penis valve, lateral view; E, valviceps, lateral view. A–B, D to the same scale and C, E to the same scale.

mesepisternum with very large, deep punctures, interspaces being generally wide, flattened, smooth, with very sparse minute punctures. Abdomen: 2nd and 3rd terga divided by a longitudinal carina (often slightly convex, linear fold-like structure) along median line; constriction between propodeum and 2nd tergum rather strong;

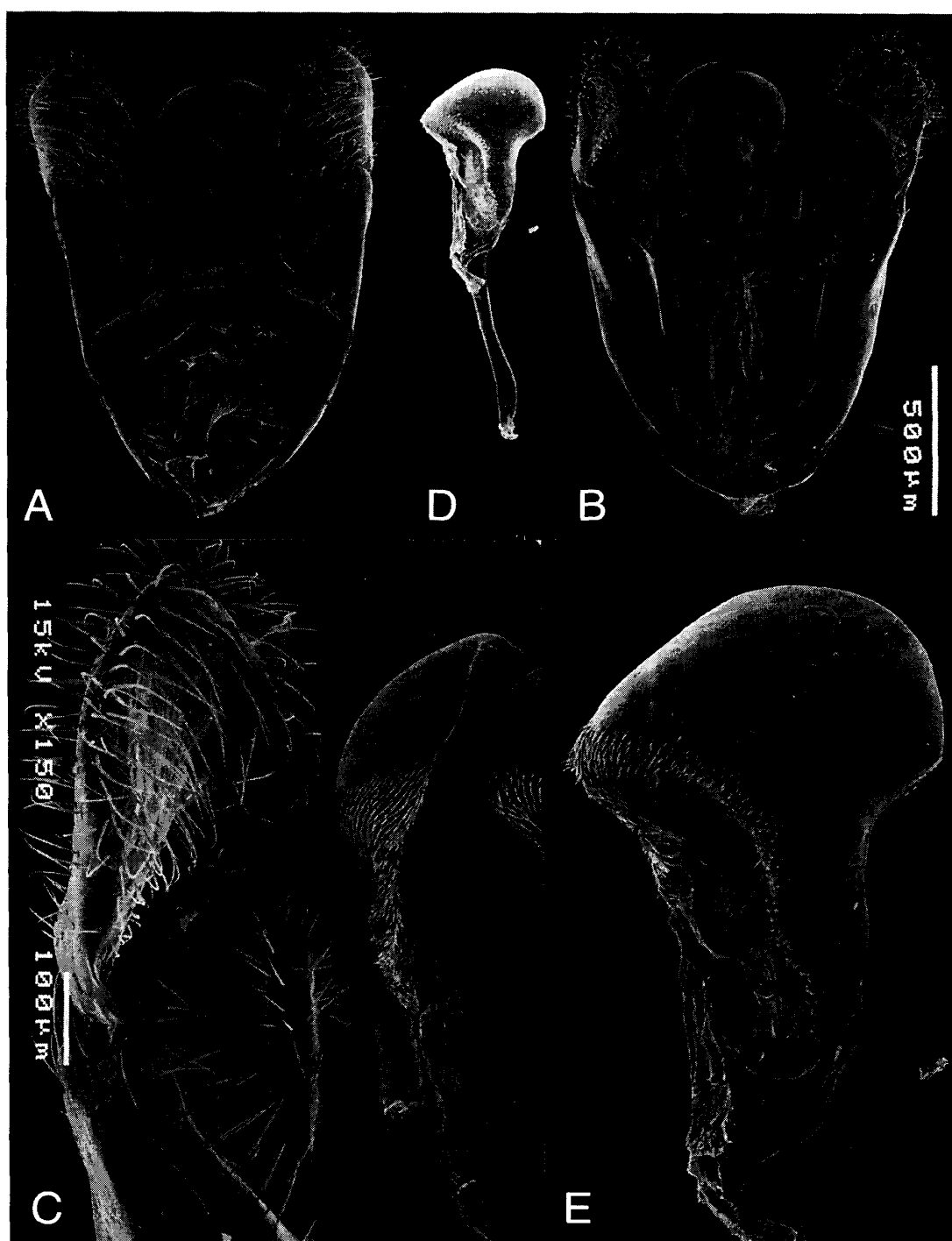


Fig. 16. *Tenthredo tonkinensis* (Mocsáry), ♂, Mt. Tam Dao, genitalia. — A, ventral view; B, dorsal view; C, posterior part, dorsal view; D, penis valve, lateral view; E, valviceps, lateral view. A–B, D to the same scale and C, E to the same scale.

apical margin of sawsheath angulate ventrally; saw slender, normal (Fig. 11 C).

*Male* (holotype). Length 10 mm. Head black, with clypeus excepting very narrow outer margin yellowish white; labrum black, midbasally rather obscurely yellowish white; mandible black with outer surface yellowish white and apex rufous. Antenna black; scape with radicula black and main body yellowish white on both ends and blackish medially. Thorax black, with very large spot at each dorsolateral corner of pronotum and very narrow posterior margin of venter of cervical sclerite yellowish white; tegula dark brown. Legs black, with the following dark yellowish white: narrow apical margin of fore coxa, anterior surfaces of fore femur and fore tibia, fore tarsus excepting very narrow apex of each segment, posterior margin of mid coxa, large, apically widened marking on anterior surface of mid femur, ventral surface of mid tibia, mid tarsus excepting narrow apex of each segment, and broad posterior margin of hind coxa; mid and hind trochanters apically more or less pale-marked. Wings subhyaline; forewing with basal infuscation on cell 1Cu and large infuscation along vein Rs, covering radial cells, two dark areas more or less continuous (Fig. 3 K); veins blackish brown; vein C and stigma dark brown. Abdomen black, with the following yellowish white: posterior 1/2 of propodeum, posterior 1/3 of 4th tergum, very narrow stripe along posterior margin of 6th tergum (laterally obsolete), large median transverse spot at posterior margin of 7th tergum, and median posterior margins of 8th and 9th terga.

Structure similar to that of female except for sexual differences; OOL:POL:OCL=2.3:1.0:1.7. Genital cavity closed and valviceps barely visible from outside; valviceps without horn-like dorsal process (Fig. 14 G-H).

Holotype. ♂, "Sikkim, Coll. Bingham," "Spec. prope *Tenthredo scrobiculata* (Knw.) ♂, det. A. Taeger, 88/ Färbung deutlich vom Typus (♀) abweichend" (MNB).

Paratype. 1 ♀, "Batjan, ex coll. Fruhstorfer," "Coll. Konow, *Allantus largifasciatus* Knw., Konow det." (MNB).

*Distribution.* Sikkim, Batjan?.

*Etymology.* This new species is named after Mr. S. Blank, Deutsches Entomologisches Institut, Eberswalde, who has first noticed the existence of a fold on the second abdominal tergum of *T. tonkinensis*. This peculiar structure is now considered an autapomorphy of the *rugulosa* subgroup.

*Remarks.* This new species is described from a female specimen from "Batjan," an island in the Moluccas also called "Bacan," and a male labeled "Sikkim." The label "Batjan, ex coll. Fruhstorfer" is also attached to some specimens of *Tenthredo largifasciata* (Konow) (see above) and the type material of *Allantus testaceus* Mocsáry, 1909 (a syntype examined; a junior synonym of *Tenthredo khasiana* Cameron, 1899) and *Allantus fulvipennis* Mocsáry (a syntype examined; a junior synonym of *Tenthredo megacephala* Cameron, 1899), all the three species known otherwise only from Sikkim or Assam or Taiwan. As Malaise (1945, p. 203) noted, occurrence of these species in the Moluccas seems quite unlikely and the possibility of

mislabelling cannot be ruled out. I would select the male specimen labeled “Sikkim” as the holotype in order to avoid any possible confusion about the type locality in the future.

*Tenthredo blanki* is well characterized by its largely pale-marked pronotum, mainly infuscated wings (Fig. 3 I–L), and fairly smooth mesepisternum covered with comparatively small, widely spaced punctures (Fig. 9 E–F). These features will serve to distinguish the new species from the other two species of the *rugulosa* subgroup.

### Key to Species

1. Second and 3rd terga normal, not divided by longitudinal carina (Fig. 2 G); constriction between propodeum and 2nd tergum rather weak; anterior margin of clypeus roundly emarginate (Fig. 6). Female: sawsheath short and stout, with apical margin rounded ventrally (Fig. 10); saw stout, sickle-shaped (Figs. 10 B, G, 12). Male: genital cavity widely open and valviceps well visible from outside; valviceps equipped with horn-like dorsal process (Figs. 14 A–D, 15) ..... *scrobiculata* subgroup ..... 2
- Second and often 3rd terga divided by a longitudinal carina along median line (Fig. 2 H); constriction between propodeum and 2nd tergum rather strong; anterior margin of clypeus deeply, broadly emarginate, with median part straight or sometimes slightly produced (Fig. 7). Female: sawsheath rather slender, with apical margin angulate ventrally (Fig. 11); saw slender, normal (Figs. 11 A, C, 13). Male: genital cavity closed and valviceps barely visible from outside; valviceps without horn-like dorsal process (Figs. 14 E–H, 16) ..... *rugulosa* subgroup ..... 10
2. Female ..... 3
- Male ..... 8
3. Clypeus entirely black (Fig. 6 A–B); postgenal carina obsolete between lateral suture and middle of gena; mesoscutellum strongly raised with more or less pointed apex in frontal view; forewing uniformly infuscated; lateral surface of mesepisternum with large, widely spaced punctures, interspaces between them flattened, (nearly) impunctate, very smooth (Fig. 8 A–B) ..... 4
- Clypeus yellowish white at least in broad dorsolateral parts (Fig. 6 C, E, G–H); postgenal carina entire, sharply carinate all around; mesoscutellum roundly convex, without distinctly pointed apex; forewing with at least cell R nearly hyaline; lateral surface of mesepisternum with large punctures, interspaces between them either very narrow and not flattened, or fairly broad and flattened but not very smooth (Fig. 8 C, E, G–H) ..... 5
4. Length 13–14 mm; mesoscutellum roundly swollen in lateral view; propodeum largely pale yellow (Fig. 1 A–B). Male unknown. Assam, Sichuan ..... *T. scrobiculata*

- Length 16–17 mm; mesoscutellum pyramidally raised in lateral view; propodeum entirely or mostly black (Fig. 1 C–D). Male unknown. Taiwan ..... *T. abatae*
- 5. Lateral surface of mesepisternum with large, rather widely spaced punctures, interspaces between them flattened, rather smooth, with sparse minute punctures (Fig. 8 C). Sikkim, Sumatra?, Nicobar?, Batjan? ..... *T. largifasciata*
- Lateral surface of mesepisternum very densely, roughly punctate, with very narrow, rather convex interspaces between punctures (Fig. 8 E, G–H) ..... 6
- 6. Length 12.5–16.5 mm; clypeus yellowish white, with outer margin more or less blackish and labrum black, sometimes with very small pale marking basally (Fig. 6 E); antennal scape entirely black; forewing infuscated from base to apex, with cells R, 1A, 2A, lower halves of 2Rs and 3Rs, and 2M and 3M only weakly infuscated to hyaline (Fig. 1 I–J); 5th and 6th terga black, with only minute pale spot at posteroventral corner of 5th. Vietnam, Sikkim ..... *T. acco*
- Length 10–11 mm; clypeus mostly pale or largely blackish and labrum with at least apical 1/3 largely pale (Fig. 6 G–H); antennal scape pale, with only radicle black; forewing subhyaline, with only apical infuscation around the vein Rs; 5th and 6th terga with posterior margins whitish at least dorsally (Fig. 2 A–D) ..... 7
- 7. Clypeus black, with large dorsolateral parts pale (Fig. 6 G); pronotum, tegula, mesepisternum, mesoscutellar appendage, tibiae and tarsi entirely black, excepting small obscure spot on lateral pronotum and anterior surfaces of fore and mid tibiae and tarsi pale; 2nd abdominal tergum with posterior margin yellowish white laterally (Fig. 2 A–B). Male unknown. Sumatra ..... *T. sumatrana*
- Clypeus yellowish white, with outer margin blackish (Fig. 6 H); broad dorsolateral corner and large lateral spot on pronotum, posterior 1/3 of tegula, mesoscutellar appendage, very large spot on posterolateral part of mesepisternum, all tibiae and tarsi (excepting dorsoapical parts of tibiae and narrow dorsal surfaces of tarsi) yellowish white; 2nd tergum entirely black (Fig. 2 C–D). Male unknown. Borneo ..... *T. borneo*
- 8. Lateral surface of mesepisternum very densely, roughly punctate, without flattened interspaces between punctures (Fig. 8 F) ..... *T. acco*
- Lateral surface of mesepisternum with large, rather widely spaced punctures, interspaces between them flattened, rather smooth, with sparse minute punctures (Figs. 8 D, 9 A) ..... 9
- 9. Length 10.5–12 mm; clypeus and labrum yellowish white, with only very narrow outer margin blackish (Fig. 6 D); supraantennal tubercle entirely black; all coxae mostly and anterior (ventral) surface of hind femur yellowish white; abdomen with broad posterior margins of propodeum to 6th or 7th terga,



- most of dorsal surfaces of 7th and 8th terga, and all sterna and subgenital plate mostly yellowish white (Fig. 1 G–H) ..... *T. largifasciata*
- Length 8.5 mm; clypeus and labrum yellowish white, with broad ventral and narrow dorsal margins of clypeus and broad lateral parts as well as ventral and dorsal margins of labrum black (Fig. 6 I); supraantennal tubercle mostly yellowish white; all coxae pale only apically and hind femur entirely blackish; abdomen with broad posterior margin of propodeum, narrow posterior margin of each tergum laterally (only 4th and two or three caudal terga with the narrow posterior margin pale all around) and broad posterior margin of each sternum yellowish white; subgenital plate black, with narrow posterior margin pale (Fig. 2 E–F). Female unknown. Borneo..... *T. niisatoi*
10. Forewing with large, sharply limited apical infuscation and much smaller, rather inconspicuous basal infuscation, otherwise hyaline; 7th abdominal tergum entirely black (Fig. 3 A–C). Male unknown. Malay Peninsula, Sumatra .....  
..... *T. rugulosa*
- Forewing with rather strong infuscation from base to apex (often somewhat weaker medially); 7th abdominal tergum pale-marked (Fig. 3 D–L) ..... 11
11. Pronotum entirely black (Fig. 3 D–H); interspaces between punctures in lateral part of mesepisternum generally narrow, not flattened, often linear (Fig. 9 C–D) ..... *T. tonkinensis*
- Pronotum with dorsolateral part largely yellowish white (Fig. 3 I–L); interspaces between punctures in lateral part of mesepisternum generally wide, flattened, smooth, with very sparse minute punctures (Fig. 9 E–F)..... *T. blanki*

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